

The Gardener, a magazine of horticulture and floriculture

Digitized by Google

ALBERT R. MANN
LIBRARY

NEW YORK STATE COLLEGES
OF
AGRICULTURE AND HOME ECONOMICS

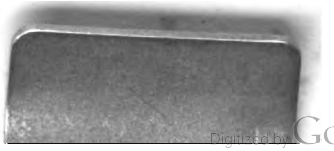


AT

CORNELL UNIVERSITY



Hanbury Barclay.



Digitized by Google

Date Due

Library Bureau Cat. No. 1137

CORNELL UNIVERSITY LIBRARY
3 1924 066 709 340

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

THE

GARDENER

A MAGAZINE

OF

HORTICULTURE AND FLORICULTURE

EDITED BY

DAVID THOMSON

DRUMLANRIG GARDENS

1872

WILLIAM BLACKWOOD AND SONS

EDINBURGH AND LONDON

MDCCCLXXII

G

Digitized by Google

SB
4
G252.
1872

W7147

PRINTED BY WILLIAM BLACKWOOD AND SONS, EDINBURGH.

Digitized by Google

THE GARDENER.

JANUARY 1872.

ADDRESS.

ON commencing a new year of the 'Gardener' under the editorship of Mr David Thomson, the Publishers have only to appeal to the steady increase of circulation during the past year, and to the numerous letters received in commendation of the work, in testimony of the estimation in which it is now held by practical Horticulturists.

A glance at the contents for last year will at once show an extent and variety of subjects treated—and treated in all cases by practical men—which is not, the Publishers are satisfied, surpassed by any existing gardening periodical; while the wide range over which the writers are disposed—extending from the southern counties of England to the northern of Scotland—secures attention, direct or indirect, to specialties of climate, exposure, and soil, which cannot be obtained with a corps of contributors more locally restricted.

In conclusion, the Publishers need only say that the name of the present Editor is, to all who know him, a sufficient guarantee that no effort will be spared during the present year to make the 'Gardener' still more worthy of the favour with which it has been received during the past.

Digitized by Google

A FEW OBSERVATIONS ON HEATING BY HOT WATER.

NOTWITHSTANDING all the elaborate essays that have from time to time appeared in the horticultural press on heating hothouses with hot water—not to say anything of the stirring controversies that have taken place on the subject—we have the best reasons for believing that many whom the matter intimately concerns have still but very vague and erroneous ideas regarding the principles upon which the proper adjustment of hot-water boilers and pipes depend. And from some cause or other, it is a notion very prevalent that the easiest and shortest way to get deeply immersed in the disagreeable and undefined difficulty figuratively termed "hot water," is to plunge into this heating question, in which are involved furnaces, boilers, pipes, fire, and water, besides that unfortunate being who has to control the elements and conditions of combustion so as to have half-a-dozen thermometer-needles in as many hothouses standing at certain hair-like marks at half-a-dozen different times in the four-and-twenty hours.

It is our belief that, if those who have to do with fixing pipes and boilers were to make themselves acquainted with the effects of heat and the power of gravitation on water, it would be next to impossible to commit the blunders, and resort to the unnecessary and expensive precautionary measures, one so often meets with and has to deal with. It is no part of our intention to pretend to deal with that imponderable and powerful agent called by men of science caloric, but which we shall call heat—hypothetically regarded as a subtle fluid, the particles of which are to each other repellent, but attractive to all substances, though in various degrees. But the effect of heat upon water, an element composed of minute and distinct particles that are supposed not to have the quality or power of transmitting heat the one to the other, as in the case of solid bodies, is one of the matters concerning which some knowledge is indispensable in the case of all who have anything to do with heating by means of heated water circulating in pipes.

The particles of which water consists, it need scarcely be said, have a capacity for heat from different sources, but most manifestly so to us in this case from combustion on the fire. Now the expansion of bodies is one of the most universal effects of increasing their heat. This expansion takes place to a greater degree in some bodies than in others. Liquids expand much more by the same increase of heat than solid bodies, and air more than either. With the expansion of the individual particles of water, their specific gravity becomes less; in other words, they become lighter in proportion to their size. Here lies the

Digitized by Google

whole secret of hot-water circulation in pipes and boilers, and the well-known law which should regulate their relative positions the one to the other. The heated particles of water bound upwards, and, as "nature abhors a vacuum," their place is taken up by a rush of colder and heavier particles. It is of very little practical use to cavil about the question as to whether heat or the greater specific gravity of the cold water which jostles up the warmer and lighter plays the greatest part in sending up and away the stream of hot water. Both have a hand in it, no doubt. This influence of heat upon water can be very manifestly shown by filling a tumbler with cold water, and mixing with it some coloured particles of matter, and then immersing the tumbler in a vessel filled with hot water. It will at once be seen, by the motion of the particles of coloured matter, that at the sides of the tumbler there is an upward current of heated, and in the centre a downward current of colder, water. And this goes on until the whole is of the same temperature. A glass of warm water immersed in cold has the current reversed in its course—upwards in the centre, and downwards at the sides, where the water is being cooled. Here we have the whole secret of the motion and course of heated water in the boiler and pipes of a properly-adjusted heating-apparatus. And one would suppose that the simple understanding of this would prevent any from making mistakes. Yet, strange to say, many who undertake hothouse-heating are entirely ignorant of these simple and well-established facts.

Wherever the heat generated by combustion in the furnace acts most directly and powerfully, from that surface bound upwards the particles of water, and to that spot, simultaneously, drop the colder particles of water, to be in their turn sent bounding on their errand of warmth; and anything that attempts to contravene this law of gravitation will be rebelled against by the elements concerned with unmistakable violence and persistency. Clearly, then, the outlet for the water, thus lightened and charged with its freight of heat, should be at the highest part of the boiler; and that by which the cold water is to run in and down, to take its place, should be at the lowest point. Boiler inventors and manufacturers recognise this important part of the matter, and always place the flow-pipe at the highest, and the return-pipe at the lowest, point of boilers.

Great importance has been attached by many to the necessity, or at least the great desirability, of having the boiler fixed at a very much lower level than the pipes; and also to the necessity of laying all the flow-pipes on the incline the whole length of the house to be heated. The importance, too, of having the return-pipes on a considerable decline, has, in our opinion, been very much over-esti-

Digitized by Google

mated. It is entirely unnecessary to form deep, damp stokeholes, in order to sink the boiler to a level below the main body of the pipes, as is so very frequently met with. And as to having the pipes running at an incline, after starting from so high a level, we consider it entirely unnecessary. Indeed, one of the most efficient heating-apparatus we ever superintended, started from about a foot above the level of the boiler, and ran down a gradual decline into the boiler. Immediately the water enters a hothouse it begins to part with the heat absorbed from the fire, gets colder, increases in specific gravity as it speeds in its way back to the boiler again, and a downhill career is most natural to it as soon as it leaves the highest point of action, where its heat is the greatest. Practically, we have never found much difference when the pipes went the whole length of the house on an incline, or on a dead level all the way round till it came near the boiler and dropped into the return-opening of the boiler. Indeed there is little fear of a good circulation, provided the pipes do not at any point descend and rise suddenly, and most especially that at any point they do not dip below the level of the return-opening into the boiler. We have had the working of apparatus where pipes, descending perpendicularly, crossed under a walk and rose again perpendicularly to heat another range of 80 feet of glass; but at none of the points were the pipes within a couple of feet of the level of the return-opening into the boiler. This undesirable arrangement worked pretty well until hard firing became necessary, when the result was that the water was thrown out in plunges at the supply-cistern. Such an arrangement should always be avoided; for if it start from the warmest part, it must be forced work for the hottest water to go downhill, and it is equally so to send it uphill cold.

There is another error frequently committed in arranging the route of the water. Suppose, for instance, a boiler fixed at one end of a house of say 80 or 100 feet long, as part of the work allotted to it. As in the case of span-roofed houses, it may be desirable to have three or four rows of pipes all round the house. Now it is not uncommon to find two rows called the flow-pipes taken all round the house to near the boiler, and there to start back with other two on the same route into the return-opening of the boiler. This is giving the water a long journey, and the return-pipes will be found comparatively cold by the time the water gets back by the same route to the boiler. Now, if instead of this the whole four pipes be connected with the flow-pipe, and go round the front and end of the house on a level, and start along the back on a decline to the boiler, and there plunge down the drop-pipe into the return-opening of the boiler, it will be found that while any portion of the pipes may not be quite so hot as the beginning of the two flow-pipes in the former case, there will not be any portion of them nearly so cold as the last portion of the return. We do not say that this is the best way to conduct the water; but we have proved from experience that the arrangement indicated is the better of the two named, when the pipes are, from any necessary conditions, laid all round the house in this way.

Digitized by Google

The supply of waste-water to the boiler and pipes is often placed anywhere that looks most convenient; but the proper place is to attach the supply to the return-pipe somewhere near the boiler. Fixed to the flow, it will be frequently plunged out by the upward tendency of the hottest water. It is also very undesirable to leave the supply-cistern to be kept full either by pouring in water from a pot or by turning a tap, which is often neglected. There should always be a cistern supplied by the action of a ball-cock, and then the anxiety connected with the neglect of supply does not exist.

A great many methods of supplying moisture to the atmosphere of hothouses in connection with the heating-apparatus have been adopted — such as zinc troughs placed on the pipes, troughs cast on the pipes themselves, a flow of water running in an open gutter, rising out of the flow at one end and dropping into the return at the other. We have tried all these, and more besides. The best that we have tried is, first, to fix a flat-bottom open trough, 2½ inches deep and 6 inches wide, the whole length of the pipes in front of the house; this trough to have no connection with the hot-water pipes beyond resting on them at a level. In the centre of this trough is fixed a 2½-inch-in-diameter rain-water pipe, jointed with Portland cement—the best of all joint-cement. This rain-water pipe is connected with the flow-pipe as it leaves the boiler, and with the return-pipe at the other end of the house. Both ends of the trough are made water-tight round the rain-water pipe. At the middle of the house a brass tap is fitted into the close-pipe which fills the trough, and can be adjusted to let water sufficient escape into the trough to just keep it full, and the small pipe nearly immersed in water. The supply to the boiler being of course on the return-pipe, is spoken of already, and by means of ball-cock. This is the most satisfactory steaming-apparatus we have ever tried; it is simple, requires next to no attention, and the water heats regularly the whole length of the house. In open gutters without the small pipe, we have always found a glut of steam at one end, and next to none at the other, in long houses. The arrangement, besides, is equal to another row of 4-inch pipes.

Space forbids us to say much of boilers. We have worked conicals, cannons, single and triple retorts, saddles, upright tubulars, cruciforms, &c. &c.; and we have some at work yet very much the shape of a butcher's pickling-tub. The last-named are perfectly absurd, of course, holding nearly as much water as all the pipes. Some of the others named are good. The upright tubulars are very powerful, but expensive, and require deep stokeholes. Upon the whole, for cheapness, efficiency, and safety of construction, we give the palm to Meiklejohn's cruciform. Various materials are used in constructing boilers, such as cast and malleable iron and copper. The latter is expensive, but marvellously effective, durable, and safe; and in our own case, we are superseding others with them, and in simple single retorts, 6 feet long by 2 feet in diameter over all. For amateurs, who only require to heat small houses, we know of nothing so efficient and cheap as Meiklejohn's amateur's retort. Fourteen years ago we heated a late vinery 63 feet long with one of these, and it is yet doing its work well. As to valves for stopping and regulating the flow of water, we have had numbers in use, but we consider Messenger's patent valve the most efficient, simple, and least likely to be out of repair, of any we have tried.

Digitized by Google

NOTES ON HARDY CONIFERS.

No. I.

AMONG the many orders into which the Vegetable Kingdom is divided, it would be difficult to name one more important, either from an economic or ornamental point of view, than the Coniferæ. The wonderful diversity of habits—from the procumbent Junipers of Europe, whose stature is measured by inches, to the majestic Wellingtonia of California, rising to the almost fabulous height of 360 feet—the varieties of colour and tint which the foliage of the various species assume, and the uniform gracefulness and symmetry of growth which characterise every member of the family, combined with the fact that a large proportion of the grandest forms are adapted to the soils and climate of this country, render them universal favourites as ornamental plants; while the well-known value of many of them as timber-trees must always insure their extensive use in forest-planting.

Ornamental Conifers—by which we mean those which are of a shrubby or dwarf-tree habit, or such as, though tall-growing trees, are of recent introduction, and too rare and expensive to be classed as forest-trees, and to which our Notes will particularly refer—are usually planted as single specimens promiscuously with the other decorative plants on lawns and pleasure-grounds, creating a richness and grandeur of effect which cannot be surpassed; or where a large collection is desired, and the necessary space can be afforded, they are now very frequently grown by themselves in a portion of the grounds specially devoted to them, called a Pinetum, where their several habits and peculiarities may be contrasted, and their characters studied, with greater facility than where they are diffused over a more extensive area. Of these there are many admirable examples throughout the country, and no portion of the pleasure-grounds is more interesting, or more frequently visited both by the proprietor and strangers, than the Pinetum.

In the planting and arrangement of a collection of Coniferous trees and shrubs—whether in the Pinetum or in the ordinary pleasure-grounds—so as to produce, by the blending of the various forms and shades of colour, that picturesque beauty for which they supply such abundant material, much must necessarily depend upon the taste and skill of the planter, the variety of sorts at his disposal, as well as the extent and character of the grounds to be operated on. It is at the same time to be noticed, that there are principles of general application by which he must as far as possible be guided, if his labours are to be followed by the fullest amount of success.

Prominent among these principles is the choice of a suitable situation, which, whenever it is possible, should on the one hand be open, airy, and fully exposed to the sun; and on the other, sheltered enough to

Digitized by Google

protect the plants from violent winds, which are fatal to even the hardiest of the tribe. Nothing is more common than to see fine varieties planted where they are literally blown out of shape, the sides of the plants most exposed, withered and leafless, making little or no growth, and after a short and miserable existence, dying off from time to time, or soon becoming such unsightly objects as to render their removal a necessity. Nor are the evils of planting in low confined situations less serious. In such they rarely mature their wood so as to fortify them against the rigours of an average winter, and the result appears in their being more or less injured by an amount of frost which in other circumstances would not affect them in the slightest degree; and even if, owing to an exceptionally dry summer and autumn, they are enabled to fully ripen their wood and to pass scathless through the winter, the no less severe ordeal of late spring frosts awaits them, to which their tendency in such situations to start early into growth makes them peculiarly susceptible.

Another very common cause of failure in the success of Coniferous plants is imperfect drainage; and in all cases where, from the land being naturally damp, or the subsoil being stiff and retentive, there is any liability to the accumulation or stagnation of water at the roots, it should be thoroughly drained before planting.

As may be inferred from the fact that Pinetums have been formed throughout the country, in which representatives of all the hardy genera are grown side by side with little or no variety of soil, and for the most part with great success, the Coniferæ are, on the whole, most accommodating, as far as mere soil is concerned, and a large proportion of the species will grow and thrive on almost any geological formation. It is necessary to remark, however, that some are more fastidious, and have certain preferences or requirements, and thrive in proportion to the extent to which these are either naturally or artificially supplied. To some of these we will advert in the course of our notes on the species; but meantime it may safely be said that, with land so drained as neither to be liable to excessive moisture nor drought, a porous subsoil, whether its composition be sand, gravel, or chalk, and a rich, deep, sandy loam, will fully supply the wants of nine-tenths of the hardy species.

In common with most other plants, Conifers delight in rich well-decomposed manure; and where, from the poverty of the soil, they have a tendency to become stunted and unhealthy, much may be done to restore their vigour by its being liberally supplied, either alone or mixed with well-rotted leaf-mould and turfy loam, forked or dug in at such a distance from the stem that the young fibres may at once avail themselves of it.

Digitized by Google

All the sorts may be successfully transplanted either in early autumn, immediately after their wood begins to ripen, or in spring, before the growth commences. We are satisfied, however, that autumn is, after all, the best season for the purpose, and would recommend the work being begun as early in September as the state of the young wood will admit of, and to be finished by the end of November; the soil is then neither chilled by frost nor likely to be saturated by long-continued rains; the roots are still active, and have yet time to make a little progress, and establish themselves to some extent in their new quarters before winter sets in. It is at the same time true, that when the plants are of a moderate size, and so prepared by frequent removals that they can be lifted with firm balls, and have abundance of small fibry roots, the season of planting is of comparatively little importance, as they may be moved with perfect safety at any time between September and April, provided the weather is fresh, and the soil sufficiently dry to be firmed about the roots without being soddened.

The process of transplanting is one that, though in itself simple and easily understood, is nevertheless so important for the wellbeing of Conifers as to demand the most careful attention on the part of the operator; and as many failures are to be attributed to its being unskilfully or carelessly performed, a few suggestions may be useful. The pits should be made much larger than the balls, so as to allow of the roots being regularly spread out on every side, leaving a good margin for the introduction of soft soil, or, if the ground is poor, prepared compost, among and around them. The bottom should be well trenched up, a portion of the subsoil removed and replaced by the surface-soil or compost: the plant must not be inserted deeper than to allow the upper roots being covered with a few inches of soil; deep planting is injurious to most plants, and specially so to Conifers, and should be carefully avoided. After the roots have been properly spread out and adjusted, and the necessary fine soil or compost introduced, the pits should be filled with earth, and thereafter well firmed round the stem with the feet: if the soil is dry, it will be necessary to make a basin round each plant, and give it a thorough watering before the surface is finally levelled and dressed. When the work is deferred till spring, and is followed by dry weather, it will be necessary to repeat the watering, and even to sprinkle them overhead from time to time, until they show signs of a movement in the way of growth: in such circumstances a slight mulching of leaves or rough manure will be found useful in preventing evaporation, and may even be left on through the summer, or at least till the weather becomes damp and wet, with great benefit to the plants, as well as saving a great amount of labour.

Digitized by Google

In view of the varied heights and habits of growth which prevail among the species, it is obvious that no general rule can be laid down as a guide to the distance at which a mixed collection of Coniferous trees and shrubs should be planted apart; the planter must consider the character of each individual, and the space which it may be expected to occupy, when in the course of years it shall attain to something like maturity, and arrange accordingly. Many mistakes have been made in regard to this, and some of what would otherwise have been the finest specimens in the country have been irretrievably damaged by being planted too closely together, or too near buildings, fences, and walks, and thus prevented from developing themselves, and assuming their natural characters. When, as is frequently the case, it is necessary to plant at first thickly, or to introduce among them other trees, either for the purpose of shelter or for clothing the ground so as to produce an immediate effect, the most careful attention should be given year after year to thinning, so that the growth of the permanent specimens may not be interfered with, and that each may have abundance of room on every side for extending its branches.

If properly planted, and under tolerably favourable conditions as regards soil and situation, Conifers are not very exacting upon the care and attention of the cultivator. He has, however, duties to perform which may not be neglected without serious injury to the plants. A Pine, for example, will occasionally be found from some accident losing its leading shoot, a contingency which must immediately be met by an endeavour to induce one of the laterals to take its place by tying it up, in which he will in most cases succeed. Two or three leaders will sometimes make their appearance, and strive for the mastery; these, with the exception of the strongest, must be stopped or removed as soon as they are observed; and if taken at an early stage, they will be effectually dealt with by a simple twist with the finger and thumb, which, by arresting their progress, will allow the selected leader to take its proper position. The pruning or stopping of such branches as have a tendency to spoil the symmetry of the plant must also be duly attended to—an operation which should always be performed in autumn, when they are least liable to bleed, and the wounds have sufficient time to heal before the rising of the sap in spring. HUGH FRASER.

LEITH WALK NURSERIES, EDINBURGH.

HARDY SHRUBS FOR FORCING.

MOST of the early spring-flowering deciduous shrubs can have their period of flowering much accelerated by being prepared beforehand; or, without any preparation at all, they may be forced into flower by simply introducing them into

Digitized by Google

heat. Under any circumstances, a mild moist heat to simulate spring weather is the best suited to the operation, and which best secures satisfactory results, although some will stand hurried forcing and do very well. In a general way, all deciduous shrubs required for forcing should, when grown in pots, have the same attention paid them as is given to Peach or Cherry trees in pots for the orchard-house: unfortunately, they do not generally receive the same care—fruit, the alternate result in the latter case, compelling more care and labour than the securing of a fair crop of flowers; and yet the extra labour is well spent in the flower crop, as it is more abundant, and strong flowers last much longer; and besides, space under glass is valuable in winter and spring.

The most useful and most easily managed of all deciduous shrubs for forcing are, without doubt, the various species of Lilacs, and they should be grown in quantity where many cut-flowers are wanted in winter. All the varieties are useful, the purple and white common Lilacs, also the double varieties of the same, the varieties called Charles XII. and Dr Lindley worked on single stems; but, in our opinion, these must all give place to the purple and white Persian and Siberian Lilacs. The French force the common Lilacs most largely, but we are not sure whether their warmer summers do not ripen the wood better, which is shorter-jointed, and consequently gives larger crops of flower-buds on younger trees, just as in the case of Pears. Well-ripened plants well set with buds, introduced into heat in November, will be in bloom before Christmas; later batches we have had in bloom in three weeks' time. The Lilac is a plant which will stand hard forcing, and no plant will force easier against time; still it is far better under ordinary circumstances to proceed slowly. Neat bushy plants of the Siberian, well covered with bloom, look well as single specimens for vases; their place, however, is the conservatory. The Persian grows to a larger size, with bolder flowers. Some gardeners grow them in pots permanently, but they require much attention with water throughout the summer, and unless much care is taken of them the result will be disappointing. Our plan is to set apart an open piece of ground for them and other things of light rich soil, which should be occasionally dressed with leaf-mould, in which they are planted 2 feet apart in nursery-lines; a good-sized plantation is necessary. If, say, six dozen are wanted annually, we lift out of this plantation what we want, and the blanks are filled up by the same plants when all danger of hard frost is over in April. If at any time any of them should grow too strong, they may be pruned back into shape, lifted, their roots trimmed in a little, and replanted, which will have the effect of making them form flower-buds like fruit-trees. In lifting them for potting, the roots are reduced to make them go into the pots suitable for the size of the plants: they may be introduced into heat at once—that is, the heat of a vinery or Peach-house just started, which is not much; and all the better if they can be plunged in a bed of warm leaves, and syringed twice a-day or oftener. Plants which are required only to supply cut flowers may be introduced with the roots entire, and simply stand on the floor of the house, with the roots covered over with a little leaf-mould. In every instance the foliage must be particularly cared for until planted out again.

Deutzia gracilis and D. scabra are the next best, the former especially, among deciduous shrubs: to have the former early they should be grown in pots. They are easily struck, like Verbenas, from cuttings of the young wood in spring, or old plants may be parted: they may be flowered little plants in 4-inch pots, or specimens 3 feet in diameter; a lot should be had in reserve planted out in the open ground, which can be lifted for forcing later. Those in pots must make their growth in a gentle heat, with plenty of moisture in spring, when they will

Digitized by Google

make shoots 18 inches, 2 feet, or more long; they should then be plunged out of doors in summer to ripen their wood, when a portion of the old branches should be thinned out. Some cut them entirely over every year before starting them into growth. They may be grown for several years in the same pots with top-dressing and feeding, and attention to drainage. D. scabra may be grown out of doors along with the Lilacs, and treated in the same way; but a supply of young plants must be kept up, as it soon gets too big for pot-work.

Weigela rosea and amabilis may be managed in every respect like the Lilacs in the south: in the north it does not always ripen its wood sufficiently to form flower-balls except against a wall; it then ought to be grown in pots like the Deutzia. It blooms with great profusion, a bunch of its large Penstemon-like flowers at each bud, and is a useful conservatory plant: should be propagated like the Deutzia from the young wood.

Spirea prunifolia florepleno is a most elegant and profuse-blooming plant, the flowers snow-white, in bunches like little Bachelor's Buttons, and useful for bouquets or glasses: it will grow to large bushes in the open air, and form its dense crop of flower-buds, when it may be lifted along with the Lilacs and potted; or it may be grown in pots along with the Deutzias. It may be struck from cuttings of the half-ripened wood, or suckers can be taken from the plants in the open ground.

Forsythia viridissima is another profuse bloomer, which grows and blooms perfectly in the open ground in the south; in the north it requires a wall. In the south all that is necessary is to lift and pot it, and introduce it into a Peach-house. In the north it should be grown in pots, and have its growth ripened early. It has one drawback, like some others of the deciduous shrubs, the want of foliage while in flower; but its masses of bright yellow flowers make it conspicuous among other plants. It is easily struck under hand-lights, from cuttings of the half-ripened wood.

Jasminium nudiflorum has the same drawback of want of foliage. The flowers are yellow, but not in such profusion as the last. It makes dwarf bushy plants in pots, and flowers without forcing, if protected in a cold pit in December.

Ribes sanguineum is well worth forcing, being showy and a profuse bloomer. It is best grown as a standard, which is easily accomplished by putting in cuttings in the open air, like the common Currant, and training them to one stem the required height, and inducing them to form heads by pinching. They must be lifted and grown carefully one season in pots before being forced, when it forms a much more handsome object than as a dwarf plant.

The Mock Orange, Philadelphus coronarius, is a much more grateful flower to the nose, and should be managed in the same way as the Deutzia scabra. It is also a handsome plant as a standard. Suckers should be selected of the desired height, and the growth confined to the head. This is a sweet plant, and worthy of any place in early spring. The creamy-white flowers are not unlike Orange-blossom in shape and scent.

Small standard trees of Wistaria Sinensis, with two or three bunches of bloom, are very pretty amongst other plants. Strong shoots should be layered from an old plant, and potted and cut back the desired height, plunged at the foot of a wall to make and ripen its wood.

Double-flowering Peaches and Cherries are exceedingly beautiful objects, and easily managed. They require the same culture, as to growing and forcing, as orchard-house trees. The Cherries are beautiful as cut flowers.

Of deciduous shrubs for forcing, the American Azaleas, with the host of Ghent varieties, are amongst the showiest and sweetest: they are in great variety of

Digitized by Google

colour—from rich yellow to bright red; some large and stray-growing, others dwarf, compact, and neat: they may all be grown in pots, carefully drained and plunged in a sheltered, not over-sunny situation, in peat-soil and sand; or they may be grown in a peat-bed in a sheltered situation in quantity, the plants selected and potted when required. We also find them to do perfectly in yellow sandy loam, on a sloping bank among other dwarf shrubs facing the west, and not sure whether they do not make most buds in that situation. They are all suited for conservatory decoration and cut flowers: the foliage being sparse, they are not so well suited for vases in rooms. The Chinese Azalea amœna, quite hardy in the south, is also excellent for forcing: indeed, if the growth be made early in pots, it blooms quite well in greenhouse temperature in winter. Plants can be lifted and forced from the open ground in the south, but its place is with the Indian Azaleas: it soon makes a handsome specimen; is easily propagated by offsets or cuttings. Lots of plants in small pots are indispensable for general decoration in winter.

Turning to evergreen hardy shrubs, beyond a doubt the grandest of all are Rhododendrons: no plant—not even the Rose—repays the labour of forcing like this, and no plant certainly makes such a gorgeous show. To begin with Arboreum, and the numerous early hybrids into which its blood is infused, and which are all but hardy in the south: they are the perfection of plants for forcing. A dozen where we write, with heads 6 to 9 feet in diameter, on stems 5 feet high and from 4 to 6 inches in diameter, are really grand, with hundreds of blooms on each plant. A plant of Campanulatum of the same dimensions has now 200 bloom-buds. There are now so many of the really hardy hybrid Rhododendrons, that it is difficult to make a selection for forcing; but the first on the list must be Nobleanum, with its two or three varieties. Brayanum, Blandyanum, Satinella, and Grand Arab are all brilliant varieties, but there are hosts of others. The best way to have them for forcing is to have a good collection of different sizes, in beds prepared for them of pure fibry peat: we have many doing perfectly in yellow sandy loam on a thoroughly-drained bottom, lifting them for potting as required, and replanting them to recover after it is safe to do so; they can also be grown from year to year in the same pots like Azaleas, with attention to watering and rich top-dressings. They ought to have plenty of room indoors to make their growth, and to be plunged out of doors in a sunny sheltered situation to set their buds and ripen. They like plenty of heat at top, and a cool bottom, as becomes their relationship to Arboreum. The process of forcing is very simple: a vinery at work is a good start, but they will do better raised near the glass in a brisk heat of 60° to 70°, if the buds be plump and firm. Single pips of the bloom are excellent for brightening up bouquets and glasses.

Kalmia latifolia, next to Rhododendrons, is the most showy of hardy evergreen forcing shrubs; we have never found it do well confined to pots entirely. It is best to grow a quantity in a sunny sheltered situation in peat or in yellow sandy loam, with perfect drainage. This is a most elegant plant for the conservatory, or for rooms. When the foliage is in good trim, dark-green and leathery, the plants may be lifted and potted, when the incipient flower-spikes are seen on the points of the branches, and forced with the Rhododendrons.

Andromeda floribunda is another favourite forcing-plant always shapely and elegant: we have never been able to do it well in pots entirely. It should be planted out in a bed of peat soil, and have liberal attention with water, and it will not fail to show abundance of its terminal racemes of flowers in summer, same time as the Rhododendrons. It should be potted early in the autumn, as the flowers take a long time to come forward. It should be brought forward slowly,

Digitized by Google

with plenty of moisture, in a peach-house at work, or it may be introduced into the conservatory at once. It is most suitable for vases and general decoration; we do not care to cut it. THE SQUIRE'S GARDENER.

THE NEW PLANT-HOUSES IN THE BOTANIC GARDEN, LIVERPOOL.

BEING in Liverpool recently, and hearing that a new range of plant-houses was in course of erection in the Botanic Garden there, it was only natural that I should wish to see how they do these things in the second city of the kingdom. My time was limited; but had it been even more so, I should have been unable to resist the desire to visit the Botanic Garden; because, owing to the extraordinary nature of the remarks that fell, with the intimation that new houses were being erected, from the lips of every horticultural friend with whom I met, my expectations of seeing something good and grand were raised to an unusual pitch of eagerness. "You should see our new plant-houses in the Botanic before you go north again; their like you have never seen; they will astonish you." Remarks such as these, uttered by men qualified to speak on such matters with all the soberness of matured knowledge, coupled as they were in my mind with the well-known liberality and public spirit of the inhabitants of Liverpool, could hardly fail to lead me to the conclusion that the latest wonder in horticultural architecture was to be exemplified in that city. I was well aware, from what I had observed of the condition of the old houses on previous visits to the Garden, that a large increase of accommodation for the valuable collection of stove and greenhouse plants, for which the garden is remarkable, has been a crying necessity for years past; and I could not doubt but that, when the corporation (in whose hands the management of the affairs of the Garden is put by the inhabitants) had at length taken steps to supply so important a need, it would be done well—the interests of science and the honour of Liverpool being the only considerations which I could conceive the Garden committee of the Town Council would permit itself to be influenced by. Filled, therefore with pleasant anticipations, I took my way to the Botanic Garden, resolved, with your permission, Mr Editor, to chronicle what I saw in the 'Gardener' for the good of all. Without further preamble, I address myself as briefly to my task as due consideration of its importance will allow.

The new range of houses is being erected on the site of the old. It consists of span-roofed houses considerably wider than the old lean-tos, and is arranged from east to west in the very ordinary manner of continuous ranges of plant-houses in general—viz., a prominent central building, flanked on either side with wings of humbler proportions. There is nothing objectionable in this arrangement, provided the parts are well balanced relatively, and that harmony of design is maintained throughout. Both these fundamental considerations are in the present case, however, set at defiance with singular boldness and freedom.

Look first at the central building. The originality of the design is questionable. I have a lurking suspicion that I have seen all its characteristics save the quantity of glass, stereotyped in not a few goods-sheds at railway stations, only the sheds had corrugated-iron roofs instead of glass. It is an immense span with its ends facing north and south. The roof is severely circular in outline, with a base of 50 feet or so; and its apex towers 30 feet or 40 feet above the lantern of

Digitized by Google

the wings, itself also being finished by a lantern of severely angular design. The ends are sheerly vertical from the ground-line to the apex of the roof. The first and lasting impression conveyed to my mind by a careful consideration of its design and proportions was, that it is a huge fragment of some gigantic scheme in iron and glass to be completed by posterity at leisure; and along with that, the other impression that posterity would neither be thankful for, nor in love with, the legacy.

Turning to the wings, I was struck with their total want of harmony, both in dimensions and design, with the central portion. It is in their height that the greatest deficiency is manifest. They are ample in width, but are low, ungainly, heavy wooden houses, with a height from the ground-line of less than half the width of the base; and the exceedingly flat roof terminates in a lantern of such proportions and weight as would have been abundantly conspicuous and suitable on the top of the huge central edifice.

Passing along the front of the range, I observed that the quality of the material and workmanship in some respects were in keeping with the unfinished incongruous design. The cast-iron gutters along the eaves of the wings were twisted, blurred, and unfinished, and at the joints where each length met there was very free outlet for water, fall-pipes being therefore superlative accessories. The coping of soft red sandstone on which the huge central building rests is only 6 inches thick, bedded on brick. The inadequacy of this to support the many tons of iron and glass above it was shown in the fact that several of the stones were already split.

Finding my way into the interior, I hoped yet to find something to admire—something characteristic of the age we live in, and more in accordance with the commonest principles of architecture than anything I had observed up to this point of my inspection of this remarkable range of plant-houses. Entering one of the wings, I was immediately confronted with about fifty cast-metal posts, varying in thickness from 3 inches to 4 inches, and disposed in five lines along the length of the house, which is about 50 feet by 30 feet or 40 feet wide. Casting about me for an explanation of this extraordinary furniture of a plant-house, I discovered it in the back-wall. It is a 9-inch brick-wall, old and crazy—so much so, that workmen were engaged patching it at the moment of my visit. It was evident at a glance that this old flimsy of brick and mortar could not have borne the pressure of that lumbering roof for an hour; therefore it was set on fifty crutches!

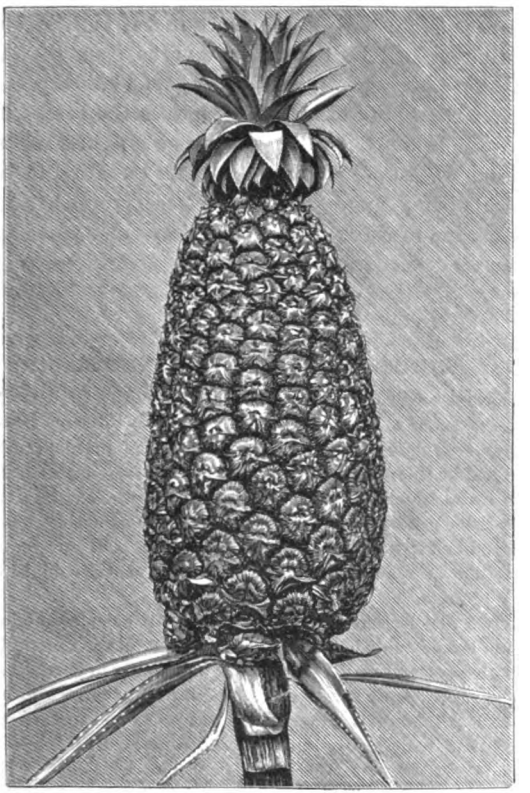
After this anything. I could bear this complete crushing out of my legitimate expectations no longer, and found relief in a hasty retreat. I cared not to inquire who was responsible for all these evidences of incompetency. I could only fervently hope that he or they might be punished for their lamentable deficiencies by having their eyes opened to see their works as others see them: then perhaps some improvement may be expected to be effected in the execution of those portions of the range that yet remain to be built.

And what of the splendid collection of plants while all this is going on? Well, the curator, Mr Richardson, was, I found, doing the best he could for them in the deplorable circumstances; but it is inevitable but that much injury will be inflicted on them in spite of every effort that his intelligent and anxious interest in his charge may suggest in the way of prevention of evil. It is only due to Mr Richardson to say that he is in no way responsible for the defects in the houses, some only of which I have endeavoured to point out; the responsibility for these lies on other shoulders, along with the weightier responsibility of the preservation of the collection of plants which, owing to repeated delays, was in considerable jeopardy at the time of my visit, the middle of November. A. X. E.

Digitized by Google

SEEDLING PINE-APPLE RAISED AT LAMBTON.

In our November issue we referred to what we considered a most promising seedling Pine-Apple which we saw growing at Lambton Castle. Since then Mr Hunter has favoured us with a photograph of a fruit of it, taken by the Messrs Downey of Newcastle, and we have now the pleasure of representing it by an engraving, which we cannot refrain



from saying does our artist great credit. The plant from which the fruit in question was cut was nearly 19 months old. The fruit measured 12 inches in height by 20 inches in circumference, and weighed over 10 lb. By referring to our previous notice of this Pine, it will be seen that our estimate of its weight has proved correct. Its colour is a high orange, the scales on the bottom sides of the pips being nearly red. Including the crown, the height over all did not exceed 30 inches. In growth it is more robust than the smooth

Digitized by Google

Cayenne, and in habit less spreading; and, from its very free-fruiting qualities, it sometimes ripens its fruit before it attains the height of a Queen. Mr Hunter informs us that he cut the fruit from which our engraving has been taken himself after it had been in the fruit-room for 3 weeks, and found it quite fresh and free from speck or discoloration. One of the fruit recently ripened from a plant which 12 months and 11 days before was a moderate-sized rootless sucker, weighed 7 lb. 10 ounces; and another now swelling—December 9th—on a plant potted a rootless sucker last March, is 10 inches high by 16 inches in circumference, and will be ripe in 10 months from the time it was potted. All have been grown in the Durham 11-inch pots, which are a small size, owing to the extent they taper to the base. The foliage is very distinct, being clad with very strong prickles set wider apart than any Pine we know. From the above qualities, in conjunction with that of its being more juicy and better-flavoured than any other large-growing Pine in cultivation, this variety must prove a very great acquisition in all collections of Pine-Apples.

PRUNING AND TRAINING.

WHAT an audacious horticultural innovator the "Squire's Gardener" must be—even to suggest such a thing as allowing Morello Cherry-trees to grow out from the wall without nailing! Many a shivering journeyman will cherish his name; but had he belonged to the Church, his heretical impudence would have earned him an awful wigging. As it is, there are signs that he will not get off with impunity if he persists in his advocacy of such outrageous practices. We should just have liked to hand him over to the preceptor of our youth for a winter's job at a wall of Morello Cherry-trees, that make us feel cold in the feet yet when we think of them.

We have a vivid recollection of confronting one particular tree for a week, with the thermometer considerably below the freezing-point all the time. "Of the hornpipes, jigs, Strathspeys, and reels," to "put life and mettle in our heels," that were performed on such occasions, it is, we are afraid, hardly correct to speak. The work had to be faced, however; every twig had to be laid in perfectly straight, until the shreds and nails nearly touched each other. Old John the foreman very fairly represented a certain class of good, but somewhat over-particular, gardeners that are fading out in these realistic days, when garden establishments are measured by a debtor and creditor's account more frequently than they used to be. John liked a good crop of fruit and a well-furnished tree; but there was no doubt a deformed or crooked branch, or a misplaced limb, seriously affected his peace of mind, and he therefore kept a hawk's eye upon his nailers. He might pass an offending branch that he conceived did not occupy its precise position once, twice, or even thrice, with a halt and a dissatisfied squint, but it was sure to culminate in a "Just come here, my man," addressed to the youth who had not hit off his ideas to a T. "I canna say I'm just a'thegither pleased wi' that branch. Ye see, if the points o' these twa branches about the middle were carried forward (a mile and a half, perhaps), they wad intersect ane anither some time. Just let that

Digitized by Google

ane do on a bit; no so much; up a wee hair,—that's it. Mind aye to keep them like the spokes in a wheel." And so John's circuit would not in future be interrupted at that point.

Such nicety in training Apple and Pear trees is perhaps excusable, as their branches are generally conspicuous; but with John, Peaches, Plums, Cherries, or Apricots were not excepted. Every branch and shoot had to be strained and pulled about for the sake of an idea. But John was not the only one we have known who carried their overstrained notions of order to such an absurd length. We knew a gardener who used to pick the leaves off his French Beans in the forcing-house when the rows did not appear straight enough to please him; and another who picked all the leaves off his Vines that persisted in hanging below the wires because they obstructed his line of vision.

I do not wish for a moment to disparage good training, for a well-trained tree is a handsome object, and does credit to the cultivator. But the chief, in fact the only, object of growing fruit-trees is fruit; and when this object is made secondary to training, it is certainly carried too far. And that this is frequently the case there is no doubt. We have seen trees perfect models of training that had not borne a bushel of fruit, perhaps, in the course of five or six years.

In nearly every work on fruit-tree culture we are sure to meet with that well-known picture of a fan-trained tree, representing the formal system of training carried out in its integrity. If any one will take a bundle of tolerably-straight Hazel-sticks, and all of the same length and thickness, and arrange them in the form of a semicircle, like the half of a carriage-wheel without the tier, and then introduce a similar number of smaller sticks between the originals, with their bases resting on the upper sides of the latter, and repeat this process of sub-division as often as they please, they will have before them the picture I have alluded to, and a correct sample of what is conceived to be a properly-trained tree, but what is in practice found to be impracticable, never advisable, and certainly not necessary on the score either of utility or ornament.

A few stout Birch branches, straight, flat, and well furnished with twigs, if arranged as I have described, like a semicircle, will furnish a good example of a handsome tree, trained on what may be called the rational system, and of the form which every tree eventually assumes, in spite of early attempts to hew it into a prescribed shape, if the tree is not altogether ruined at the outset. This system, if judiciously followed up by summer pinching, and little or no pruning in winter, will, in the case of stone-fruits at least, give early satisfaction.

As regards standard Apple or Pear trees, whether grafted on the Crab or the Paradise, the Pear or the Quince, there can be no doubt that, if we want to have early and abundant crops, winter-pruning must be reduced to a minimum, and summer-pinching resorted to, though this should not be carried too far. If we want to get the full benefit of the Quince or Paradise stock, for instance, we must let the trees carry as much wood and foliage as can be well exposed to the light; in short, allow full scope to the energies of the tree. Within the last two years we have planted nearly 200 Apple and Pear trees on the Paradise and Quince stocks, and we intend to allow them to develop themselves to their fullest extent.

Out of about fifty Maiden Apple and Pear trees on dwarf stocks which were planted last April, a number blossomed; and some Colville Blanch trees bore fruit of fair size. These were received from the nursery as "Cordons," with a single shoot to each about 3 feet long. They were planted against a wall, about 1 foot apart, and each shoot was nailed in its entire length. During the summer the leading shoot was allowed to grow as much as it would, and the side shoots were

Digitized by Google

pinched; but, as might be expected under such circumstances, little else than fruit-buds were developed along the stem. By this plan it will be seen we cover a piece of wall 4 or 5 feet high with bearing-wood the first year. Had we planted the trees, say 10 feet apart, to be trained as dwarf fans, as many cultivators do, it would have been necessary to shorten back the shoots considerably every year to secure a foundation, while by the other system we should be gathering fruit. In our opinion, those who plant Apple and Pear trees on the Quince and Paradise stocks in large gardens, should plant in quantity and close together, selecting sorts only of known excellence, and not too great a variety. We plant nearly in the form of a hedge at first (pyramids), so that if a tree dies, it can be replaced easily.

With regard to trees on the natural stock, there is no doubt that those which are allowed to grow most and are pruned least, save thinning, bear soonest and most abundantly. I am speaking of standards. We know from everyday experience that if we cut back a strong shoot, the result will be several other shoots quite as strong without fruit-buds; but if we leave the shoot entire, we will have a less robust growth, and a shoot furnished with natural fruit-buds its whole length. We have seen the effects of such treatment often, and could point to trees now which the knife has hardly ever touched for ten years, and upon which the Apples hang, when the trees bear, like strings of Onions on the long pendulous branches. J. S. W.

HINTS FOR AMATEURS.—JANUARY.

IN the fruit-garden there is little that we can advise, except repeating what has been written for the last two months. There should be no unnecessary delay now with planting, pruning, tying, nailing, &c. To force this work forward in severe frosty weather would do more harm than good, but when it is done, every attention should be given to have the work well done, planting especially. Good loam, free from manure, suits all fruit-trees; and if it is very strong, a little brick-and-lime rubbish will do no harm. Mulching and protection from winds should not be forgotten when trees are newly planted. All pruning should be finished, except Peaches, Apricots, and Nectarines, which should remain unpruned, and the wood kept off the walls till the end of next month or later. Let the protecting material be looked over, and repaired if necessary when weather is wet, or during a snowstorm. Bushes (such as Currants and Gooseberries) are much improved when lifted and replanted, well mulching them afterwards: all moss should be kept off—lime-wash destroys it. Old trees which have become stunted may have the old surface-soil taken off, and a good coating of manure given to invigorate them; but if the roots have found their way deep into poor or unhealthy soil, no surface-dressing will reach them. Digging deeply, and bringing up the roots by degrees into fresh soil, is the only means of renovating the old trees.

When leaves are all collected, shrub-borders cleaned or forked over,

Digitized by Google

covering quantities of leaves (but not injuring the roots), walks fresh turned and gravelled, grass swept and rolled, and turf relaid where it has been worn bare of grass,—the appearance of the ground will be cheerful; and where plenty of Snowdrops and Crocuses make their appearance, and attention is given to order and high keeping of ground, there is ample reward for the labour bestowed. Box-edgings may now be laid or repaired. For a fresh edging, break up the line with pick and spade, picking out stones likely to be in the way, tread the whole firmly, beat flat with back of spade, making the surface level at same time, stretch the line where the box is to be placed, making a mark, cut out a trench sufficiently deep to hold the roots of box, place it neatly and even in the line, holding it in its place with the back of the left hand, while the soil is drawn to it with the right hand, tread the earth firmly to the roots, level in the gravel, making it smooth and firm,—then the work is finished. The box is prepared by dividing large plants into small pieces, cutting the tops in evenly.

Rose-planting may be done when weather will permit it. Protect them with litter, leaving pruning alone till March or later. All bulbs are the better of being kept from frost. If planting of bulbs has been delayed, they should now be got into the ground as early as possible. Free healthy loam suits them. Ranunculus roots may be planted when weather is mild. The soil should be in healthy condition by free exposure to weather, turning it frequently. Deep, rich, moist soil suits them. All tubers and bulbs are the better of being dusted with sand before they are covered up. A thoroughly-drained position is necessary for all this class of plants, as stagnant water about them is as great an evil as drought. Chrysanthemums done flowering may have the old tops cut off. Those against walls, and in other positions outside, should have plenty of ashes placed over the roots. Those in pots require the protection of a frame. The young tops should be kept growing, so that strong healthy cuttings may be had, or be in good condition for dividing by-and-by. Attention to the stock of bedding-plants may now be necessary. Where there are means to get a quantity of Verbenas, Heliotropes, and similar plants into heat to excite growth, plenty of cuttings will be ready in the course of a few weeks. Everything in the way of soil, pots, drainage, pans, &c., should be got ready when weather prevents other operations; so that propagating, &c., may be carried forward without interruption. All bulbs which show flower in heat should be taken to cooler quarters before the flowers open. The same may be said of forced shrubs, and other plants brought forward in heat. Fresh batches should be taken in as others are taken out. Roses will now force freely. When brought forward gently with mild bottom-heat, they are much finer, and less subject to insects, than

Digitized by Google

when subjected to a high temperature. Cinerarias for large specimens may be shifted into larger pots if necessary. Starving them gives small flowers and a short blooming period. Fuchsias to produce cuttings may be brought forward gently. Young plants from autumn cuttings should be kept near the light, and air allowed in mild weather. A little warmth is necessary for them. Hard-wooded plants will generally be in a dormant state, and must be kept as cool as they will allow. Watering should be given them only when it is necessary. Wet collars are productive of great evil. Watering should be performed on mild days, and if dry and sunny, so much the better. No damp or bad leaves should be tolerated in structures of any kind. Pelargoniums are very impatient of damp when growth is as slow as at present. Fumigating must not be forgotten. M. T.

NOTES ON SUCCULENT PLANTS SUITABLE FOR OUTDOOR DECORATION.

Now that another season has passed, and left some marks of advancement in our flower-gardens, it may be appropriate to consider what may be done to render the combinations still more chaste and pleasing, and to suggest such improvements as will further the objects and interests of all the various methods of decoration that are popular at the present day. The stride that has been taken in this direction within the last few years would seem to leave little room or need for introducing new features into any system of flower-gardening. Yet there is a deficiency in our succulent and foliage bedding, in the far too limited collections of plants that are generally considered available for out-door decoration, which is likely soon to be remedied when the adaptabilities of many choice Aloes, Agaves, Cotyledons, Echeverias, Gasterias, Haworthias, Mammillarias, Sempervivums, Sedums, &c., become better known, all of which we hope duly to notice. To recommend the cultivation of so ornamental and interesting a class of plants, to those who are acquainted with their charming and valuable qualities, is unnecessary. Yet until quite recently how reluctant we have been to recognise their merits, or make use of any but such plants as presented a glare of colour. All besides were eyed with distrust; now they are one of the most striking features in our gardens. The improvement that fine foliage and succulent plants confer, in toning down the glow of colour, can scarcely be overrated. A bed of these grotesque novelties, with their peculiar antique structures, has only to be seen to be appreciated. The effective beds of Acer negundo variegata, or the majestic groups of Cannas and Wigandias,

Digitized by Google

in conjunction with the noble Musa ensete towering up as a mark of Abyssinian grandeur, annually to be seen in Battersea Park, do not present the peculiar attractiveness of a small bed of these succulent plants artistically arranged. The enthusiastic amateur, with his murky town atmosphere of smoke and dust, will find himself equally repaid for the small amount of labour bestowed on the plants of which we are now speaking. It would be difficult to find a more excellent or varied collection of these plants in any large nursery establishment around London than that offered in Mr Parker's of Tooting, or the still more varied and rich private collection of J. T. Peacock, Esq., Ludbury House, Hammersmith, which now ranks with the first in Europe.

We do not intend to enter into detail as to their combinations, as these were elaborately pointed out and illustrated in the 'Gardener' for February and March last. To our mind, where the means are at hand, a small bed of varieties is most pleasing. One of the finest we saw in the past season was a small circle of 6 feet in diameter, with upwards of fifty varieties judiciously arranged in it. Yet too much importance may not be attached to a miscellaneous group, as singularity of form will sometimes compensate for want of variety; but to avoid a positive sameness, it is desirable that the plants used should be thoroughly distinct in character, of which a long list of names would convey little information to those who may not have seen them. Therefore we will give a short description of a few gems, which are noted for their curious and distinct appearance.

Among the most prominent are Echeveria agavoides, which is rarely met with. It is one of the most striking and beautiful in outline; its general appearance resembles that of a small Agave, with rather thick, fleshy, broad-based leaves, terminating towards the apex in a spine-like point disposed in the form of a rosette, of a most pleasing delicate silvery hue. From its close compact habit it is difficult to propagate from leaves, but should be granted a little good treatment, when it will flower and seed freely: it will contrast nicely with E. glauca metallica, a stemless variety of good substance, remarkable for the immense size of its leaves, which are of a bronzy glaucous hue; it also comes true from seed. E. pulverulenta is certainly a famous plant, but useless for bedding, as the first shower of rain divests it of the loose powdery whiteness which forms its principal attraction; but it is a most desirable novelty as an addition to a collection. E. metallica still holds its own against all comers, being very serviceable for centres of groups. E. retusa floribunda, E. splendens, and E. gibbiflora, are also useful in this way, both having green foliage of a silvery tinge. E. purpurea and E. atropurpurea are both of a deep reddish-purple colour,

Digitized by Google

and are the best of all the dark-foliaged ones. E. secunda, E. pumila, E. glauca, and E. glauca major, are all well-known varieties, with a combination of grey-glaucous-green colours, well adapted for making a beautifully neat finish to beds, and in some cases ribbon borders. E. calocophana is exceedingly dwarf, with light-brown leaves, and forms a very pretty contrast with E. Scherii, a little miniature, with handsome foliage of a frosty whiteness, which has a nice companion in E. globosa, with its coat of bluish bloom,—all most valuable for edging. E. lurida makes a pretty edge of dark metallic hue, to contrast with E. californica, with small white sharp-pointed leaves. E. Peacockii is a fine new distinct variety, in the collection of J. T. Peacock, Esq., and named after that gentleman, with very distinct green foliage, edged with crimson. Pachyphytum bracteosum has a very ornamental appearance, with upright stems closely studded with thick, blunt, pointed leaves, 1 or 2 inches in length, of a rich creamy-pink colour, and is worthy of a place in the choicest collection: it is of easy culture, and comes true from seed. P. lingua resembles in form the preceding, with leaves of a beautiful glossy green. Cotyledon pulverulenta has effective white foliage, well adapted for groups. C. elata and C. folicularis have also much of the same habit and colour, and can be used with telling effect. C. maculata and C. Cooperii are handsomely speckled, forming a most pleasing contrast to C. mammillaris, C. cristata, and C. clavifolia, which are novelties with small green tubercle leaves. C. coruscans makes a nice groundwork for any of the tall growers. Rochea falcata and R. perfoliata are two curious-looking plants, with thick fleshy tongue-shaped leaves: the first-named often flowers in the autumn, when it may be lifted and potted, and placed in the greenhouse, where, with its large trusses of rosy-pink flowers, sometimes 12 inches across, it is very useful, and will flower in this manner each succeeding year. Many of the Crassulas have beautiful leaves, and can be introduced with admirable effect. C. arborescens and C. portulacea assume much irregularity of form, with rustic stems and half-frosted-like foliage. C. lycopodioides, C. multiceps, C. Cooperii, and C. tetragona, are very pretty for carpeting. Kleinia tomentosa is a very beautiful addition to this class of bedding-plants, with peculiar little fat woolly-white leaves, and should occupy a conspicuous position in conjunction with K. repens, and its exquisite blue graceful round leaves. K. ficoides is a useful plant, and K. acaulis is suitable for carpeting. Senecio pyramidatus is an elegant plant, with perpendicular stems from 6 to 15 inches high, compactly studded with slender lanceolate leaves of a nice velvety-green lustre, forming a good contrast to S. calamiformis, with the same habit, and stems and leaves alike covered with fine silky-white hairs, giving the whole plant

Digitized by Google

a charming silvery appearance. All are easily propagated by seed, leaves, and cuttings: we decidedly prefer the first, it being the most economical and effectual. Acting on this principle, plants which are intended for seed should never be planted out, but kindly treated in the warm end of a greenhouse, where they will soon flower, and should be impregnated, when they will swell seed-pods rapidly. For instance, one plant of the Pachyphytum thus treated is capable of producing hundreds of young seedlings, where it would take years to muster the same number from leaves. Early spring is the best time to sow seed. In preparing pots or pans for its reception, they should be half filled with drainage, filling the remainder up with a light compost of loam, leaf-mould, and sand; when the seed (which is often of a dust fineness) may be sown and slightly covered, then given a gentle watering, and placed in a temperature of 60°, where it will soon germinate, and should be pricked off, as soon as they are fit to handle, into pans filled with much the same compost, and again placed in a gentle heat, where they will soon develop themselves, and be gradually hardened off till the month of June, when they may be planted out into any reserve ground exposed to the full blaze of the sun, where they make finer growth than when subjected to starving in small pots, with less trouble and care entailed. At the first indication of frost they should be lifted and potted singly into 60's, and placed in any pit or frame where frost can be excluded, maintaining a dry atmosphere, when they will furnish nice plants for bedding the following season. As seed of all varieties may not be accessible, in propagating them from leaves it is only necessary to pull them off and insert in pots or pans prepared as for seed, when many tiny little plants will soon spring from the base of each leaf. Large leaves may be laid flat on the surface, with a small piece of crock resting gently upon them to press them to the soil, when rows of young plants will be produced round the edge of the leaves. Propagating by cuttings is generally applicable to those with long stems, when the top may be cut off and potted, and the stem, if kept growing, will produce many young shoots, all to come under the same treatment.

We have by no means exhausted the stock of the genus treated on—only a few of the more striking have been noticed; a full enumeration would occupy too much space. We append a list of those equally meritorious:—

Cotyledon adunca.
" arborescens.
" bracteolata.
" cæspitosa.
" fascicularis.
" fulgens.
" gracilis.

Cotyledon hemisphærica.
" orbiculata.
" oblonga.
" tricuspidata.
" triflora.
" vilutina.
Crassula centaureoides.

Digitized by Google

Crassula cordata.
" Cooperii.
" canescens.
" cordifolia.
" cultrata.
" crispa.
" ericoides.
" lactea.
" obovata.
" perfossa.
" punctata.
" quadrifolia.
" rubicunda.
" rosularis.
" spathulata.
" verticillata.
Echeveria canaliculata.

Echeveria fulgens.
" glauca intermedia.
" glauca major.
" linguæfolia.
" nuda.
" navicularis.
" rosea.
" retusa.
" lutea gigantea.
" stolonifera.
" villosa.
Kleinia articulata.
" anteaphorbium.
" calamiformis.
" diversifolia.
" papillaris.
Pachyphytum roseum.

J. M.

(To be continued.)

ON THE CULTURE OF FERNS IN WARDIAN AND WARRINGTONIAN CASES.

FERNS present so many pleasing, varied, and interesting attractions to the parlour gardener, that it would be surprising if he, or rather she (for nine-tenths of British parlour gardeners are ladies), did not manifest a very decided preference for their cultivation over that of every other class of plants that will submit to the conditions of parlour gardening. As a matter of fact this preference is shown to a wide and general extent among this class of cultivators, and strongly to the praise of the nine-tenths be the fact uttered, for there is no saying what outrages of taste the minor tenth would commit, were it not restrained by the correct example and gentle precept of the fair majority. Whether it be the characteristic grace of Ferns generally, their superior adaptability to parlour cultivation and ornament, the edifying sermons which the study of their peculiar structure and economy is adapted to preach to old and young, or all these considerations combined, that conduce to the popular taste for Fern cultivation, the writer cannot say, nor will he stop at present to inquire. The few that could appreciate such an inquiry he believes capable of instituting it for themselves, and desires to leave it in their hands; and the many that don't care a button about any consideration on the subject, except it tend to help them in the proper management of their pets, may be excused if they object to being bored by uninteresting details, even on a pet subject. It will therefore be more profitable to the majority of readers, and more congenial to myself, to discuss the principles and practice of the culture of Ferns in Ward's and Warrington's cases.

Digitized by Google

That there is some necessity for a better diffusion of clearer views respecting these principles among this class of cultivators, there is no room to doubt. Very few of the plant pets of the parlour that come under my observation are in better physical condition than that peevish surfeited poodle, or that dyspeptic Skye, whose gratitude for the mistaken kindness lavished upon them is very properly shewn by their unhappy snarls.

Before proceeding to the consideration of the principles of management, suitable soils, and selections of sorts, it may be as well to give some hints as to what the Wardian case and Warrington case are or should be, in order to be well adapted to the purposes of plant cultivation. The Wardian case is simply a greenhouse in miniature, composed of glass and wood, metal, stone, or earthenware; and it is employed in rooms for the purpose of securing therein some of the enjoyments of a greenhouse of larger dimensions. The mere form of the structure and the materials thereof may be left to the selection of individual taste. But it should be composed of at least three parts, and each part should be separable from the other with ease and at will at any time. To begin with the base, it will require to be water-tight, so as to catch and retain the water that drains from the soil, and so prevent injury to carpets and furniture. In the bottom of this pan at one corner should be placed a tap, for the purpose of drawing off the water when necessary. The next part is the pan or pot in which the soil and material to secure free drainage are to be placed: this should be provided with a perforated bottom, in order to permit unimpeded outlet for superfluous water. The last part is the case itself. It should be light and elegant, and capable of admitting the largest possible amount of light. It is most convenient when it is made so as to lift off clear from the bottom; and when large, the roof also should be detached from the walls, for convenience in giving air and getting easy access to perform any of the operations necessary in the general management of the plants.

I have been thus particular in describing the essentials of a good Ward's case because I have observed many that are deficient in one important respect. Nearly every one of those that are made of earthenware, and some that are made of other materials also, are unprovided with any outlet for water. They are, in fact, water-tight vessels in which even bog-plants would soon sicken and die, because they would miss the comparative immunity from complete stagnation which percolation, however slight, and unimpeded evaporation, insure in even the most stagnant of natural bogs. Every one bent on purchasing a Ward's case should therefore see to it that it is provided with sufficient outlet at the bottom of the inner pan for superfluous water, else stagna-

Digitized by Google

tion will be the immediate result, to be quickly followed by vexatious failures in every attempt at plant-growing. The Warrington case is a composite of the Ward's case and the Aquarium, combining in one structure the general features and facilities of both. It is a miniature lake in the parlour, adorned with tiny rocks to give shade and seclusion to the finny and other aquatic inhabitants, and resting-places for plants. Its construction is necessarily different from that of the Ward's case, and is simpler. It must be water-tight, and the roof is all that should be movable, for the convenience of access to the interior and for ventilation. A tap should be provided in the bottom at one corner, to facilitate drawing the water off when necessary.

In describing the processes of cultivation, and the general management of these cases, it will be necessary, for clearness' sake, to take the two forms up separately: such differences in the details of the management of each as it is requisite to observe will thereby be more clearly pointed out. We shall take Ward's case first. First, as to soil. The most important points in reference to soil are, that it should be porous and clean—that is, free from weeds, and seeds of weeds, as far as possible. Loam from the turf of an old pasture or hedge-bank, or roadside, when it has lain in a heap some time, and been frequently turned, forms the best possible base for a compost congenial to most Ferns. About one-third fibrous peat added to this, if it can be got, improves it much, especially if the loam is of a tenacious character. A very liberal dash of sharp sand with nodules of soft porous sand or pumice-stone and charcoal, will require to be well incorporated with the soil before putting it in the case; and it should in no case be sifted, but merely be broken down sufficiently fine with the fingers after having been chopped up with the spade. W. S.

(To be continued.)

GARDENING IN AMERICA.

BY far the most beautiful public flower-gardens of which America can boast are to be seen in the cemeteries. Many of these are models of how such places should be kept; and large sums of money, and a corresponding amount of skill, are spent on them every year. Cut-flowers, too, are employed very largely in these silent abodes of the dead. In the spring, the young carry their innocent offering of Flora's rarest gems, and thereby brighten for a little while the burial-places of the great; and in many parts—Lexington, Kentucky, amongst the number—the common soldiers who perished during the late war receive a like attention. But a political feeling is very strong here still, entering into all the concerns of life—so it follows to the grave; and

Digitized by Google

even there, where one would think strife should cease, the Northerner separates from the Southerner, and in that manner pays his tribute of respect.

Wherever you go in this country you find florists. Many of these know their calling well, and an equal number know very little about the matter; but I have never yet known an industrious man who started on his own account who did not succeed—at least financially.

When I was at Boston about a year ago, I saw in a public park there some attempts at making a ribbon-border, and certainly for rudeness, and the complete ignorance they displayed of the materials at command, they were something quite remarkable. There were tall rows in front of dwarf ones, and the colours could hardly have been disposed in a worse way if a man versed in the matter had been trying his best to give an example of all that was bad. Doubtless, however, the gentleman who had charge of the affair, or who contracted for the doing of it, was making plenty of money out of it; and in every part of the States, and amongst all classes, the "siller" is the *primum mobile*. I do not wish to imply that Jonathan is a miser, for he is nothing of the sort. He won't use violence to take from you what you have, but will outwit you if he can, and all in order that he may be able to enjoy himself in his own way. The great central park of New York is one of the grandest skeletons of the kind in the world, and even in its present state of partial nakedness, it is by far the best thing of the sort in the Union; and when the hand of man does as much to adorn that spot as the hand of nature has already done, the result will be all that could be wished for. What a noble field this would be for such a man as Mr Gibson to operate upon!—hill and dale, wood and lake, are there with all their native charms; and every fresh position reached but opens up new views, if possible more grateful than those which have gone before. The foremost botanic garden of America is the one at Cambridge, Massachusetts; and when I saw it about a year ago, it seemed to me in every way unworthy of the University to which it belongs. The collection of plants was very small, and the few paltry glass erections were filled with subjects mostly more important commercially than likely to aid the student of science.

Although America is far behind the mother country in nearly all that relates to the treatment of ornamental plants under glass, and to the correct disposal of flowers for effect in any part of the garden, yet in the strictly utilitarian department, which concerns itself with what can be used as food, I think the United States, as a whole, is entitled to an advanced rank amongst the nations. It is true that the New England States, and a few more of the northern States, are

Digitized by Google

more especially entitled to claim this distinction—a knowledge of how to develop the resources of the soil not being so well diffused in proportion as you enter upon the territory where, not many years ago, slavery held sway. For example, down here in Kentucky, the beneficial effects of draining, manuring, and the rotation of crops are almost unknown—or, if known, scarcely ever made to operate. The weeds spring up as thick as dust, and the native farmers and gardeners firmly believe in spontaneous generation, fully convinced that the soil has power at any time to produce plants without the intervention of seeds. Indeed, a clergyman who never heard of Dr Bastian or Darwinism, told me the other day that this was his opinion, and brought forward a lot of supposed facts in support of his views. An old gentleman not far away has a large orchard which he never prunes, because he says God knows best how the trees should grow. The head of one of the most prominent institutions of learning in this State, and of an agricultural college as well, permitted about an acre of Strawberries to be overgrown with rank vegetation, under the impression that thereby the ground would be shaded and the moisture kept in it. I find that this notion is pretty common in this quarter. On the other hand, directly you get to New York, Philadelphia, Boston, or any of the great northern cities, you find the whole of the principles which apply to the cultivation of the soil, and the necessities of plant-life generally, well understood, and governing every operation. The ground is well drained, regularly manured—and manure, like the crops which it helps to nourish, is rotated. The results are in every way equal to those obtained in Europe.

If I were to stop at this stage of my narrative, it would very naturally be inferred that the British horticulturist intending to come here for the purpose of improving his chances of success in life, is going to make a serious mistake. But I have told only half the truth; and by this method of imparting information, a wrong impression has already been circulated throughout every part of England and Scotland. As yet I have not said one word about remuneration; and as money is a little affair likely to exert a considerable influence in determining whether the decision should be for or against America, let us see how matters are with it. A gardener "out of place" in the old country, and waiting his turn in the nursery, I need hardly say, gets his miserable pittance of from twelve to fifteen shillings per week, barely sufficient to keep soul and body together; whilst here, if in "hospital," he can very readily save that amount, and at the same time live like a lord as regards food. And there can be no difficulty in procuring plenty to do. I was not a week in the States before I started to work, my terms being those just referred to; and I came

Digitized by Google

here at the very dullest and worst time—that is to say, towards the close of autumn. It was not long before I got out of the nursery into a situation where I could easily put away £100 every year. And here money makes money fast, for a man can always lend out small sums at ten per cent interest and receive good security, such as a mortgage on real estate. And let it not be supposed that I might never be so fortunate again; for since reaching Kentucky I have had several offers quite equal to that for which I engaged to come here. I hope these disclosures relating to myself will not be regarded as savouring of egotism, inasmuch as my only motive in making them public is, that I may be the better able to give a tolerably complete and faithful picture, so that men of average ability who are leaving their own country for this may be enabled to form an idea of what they have a right to expect.

JOHN DUNCAN.

LEXINGTON, KENTUCKY.

(To be continued.)

NOTES ON AUTUMN AND WINTER FLOWERING PLANTS.

(Continued from page 557 of 1871.)

THE BRUGMANSIA.

BRUGMANSIAS are great ornaments to the conservatory. There are many varieties of various colours, but we are rather partial to the single white, being more showy than most of the double sorts, and not so heavy in the individual blooms. They are more outstanding, and show more of their flowers than the double variety. Where space can be devoted to them, they do best planted out in well-prepared borders, when we always find the flowers are larger, and they continue longer in flower than in pots. Nevertheless good plants can be grown in pots. They are easily propagated from cuttings or eyes taken off like Vines, and put into heat, when they will soon root. When there are roots showing themselves round the side of the pot, shift into a size larger at once. The soil should be a rich loam with some cow-dung put amongst it—as they are gross feeders, and being confined to a pot, they require good material to work upon. After having received this shift, let them be placed in a temperature of about 65°, not too far from the glass; water rather sparingly for a few days, until the roots begin to work in the fresh soil, but afterwards let them have a copious supply when they require it, and regular syringings. If all goes well they will soon be nice plants, having filled the pots with roots. It is of the utmost importance to their future welfare that they

Digitized by Google

do not receive a check at this stage, either from want of watering or being too long in getting another shift. They are very subject to red-spider, and checks will hasten its appearance very much. For the second shift, pots two sizes larger should be given, always giving them as rich a compost as possible, with good drainage to the pots. Being vigorous plants now, they will do well in the second Peach-house, where they will get a little shade, and where the syringe is daily at work—a thing which must on no account be neglected with them. If wanted to flower the first autumn, the last potting should not be later than about the middle of June, after which there is time to make a good growth. When the last pots are full of roots, manure-water should be given frequently; syringing should be regularly attended to until they are taken to the conservatory. When done flowering, let them be placed where they can get well ripened; then stand them anywhere out of the reach of frost till the following spring, when the treatment of Fuchsias suits them well. When plants in 11-inch pots with 4-feet stems have over twenty-four large snowy-white flowers, all open at one time, they are amongst the most ornamental of plants.

CYCLAMENS

are universally admired for their neat and chaste appearance, and when well grown are handsome in foliage, without the flowers: as a natural consequence, if the former is fine the latter will follow. They are of easy culture. Whether in the conservatory, drawing-room, or a few blooms set in one of their own leaves as a button-hole bouquet, they are always admired. Now is a good time to sow a little seed to come in early next autumn: let the pan or pot be well drained, and filled with soil rich and free; after sowing, care should be taken not to cover the seeds too deeply, as they are apt to rot if the soil is kept too wet. When sown and watered, let the pot be placed on a shelf near to the glass, where a temperature of 65° can be maintained. They will not be long of making their appearance; and as soon as the second leaf is fairly developed, pot them singly into small pots, using good loam, with a little of an old mushroom-bed broken up and put through a half-inch sieve, adding as much silver-sand as makes the whole sparkle. If they can be placed in a pot near to the glass, with the same heat as recommended for the seed, they will soon start into growth, which must never get a check, but must be attended to in watering and occasionally sprinkling overhead with a fine rose. About June the most of them will be ready to be put into 4-inch pots, using the same compost, only adding a little soot to the soil; pot rather firmly, leaving the top of the corm quite out of the soil. Place them again in their old quarters, always keeping them near the glass,

Digitized by Google

and, as autumn approaches, many of them will be showing quantities of bloom.

A pinch of seed sown a month or six weeks later will give a fine succession right through the winter and well on into spring. When in the conservatory they must have the lightest and warmest situation.

SALVIA SPLENDENS.

This old plant comes in very useful at this dull season; with its bright scarlet flowers mingling amongst the other things, it enlivens the stages wonderfully—and it is of easy growth. When grown principally for cut flowers, it is best to plant them out, as large plants are produced which yield immense quantities of flower. Whenever frost is gone in spring, select a piece of ground, and manure it with leaf-soil; then trench it two spits deep, plant the young plants about 3 feet apart every way. Little more attention will be required until lifting time, unless it prove very dry, when they should get heavy waterings, and have their main branches fixed to stakes in case of high winds. About the end of August they should be lifted and put into pots just large enough to get the roots comfortably into them without breakage. Give a good watering, and place them where the sun cannot get at them for a few days, until they get over the removal. Dewing them over several times a-day at first will help to keep the foliage all right. As soon as they can stand the sun, place them where they can have the full advantage of it. As the long cold nights come on, put a few in a gentle heat to hasten them forward, and they will aid materially in making the cut-flower-basket look gay. For standing in the conservatory, we prefer to grow a few in 6 and 8 inch pots plunged out of doors, but treated in every respect the same; they grow more compact.

A. H.—T.

ROOT-PRUNING YOUNG VINES.

In a previous number of the 'Gardener' I referred to this subject, mentioning a lot of young Vines which were planted at Newington, Edinburgh. These Vines were prepared by Mr Thomson, Tweed Vineyard, on his root-pruning system, as described by him in the 'Gardener' of January 1871, and were planted by Mr Shaw the end of March 1871. It will perhaps be remembered that their roots at the time of planting were compared to the dense twiggy roots of a Holly or Box-tree. Being interested in the results produced in a short time by Vines thus prepared and rooted, I availed myself of the opportunity of calling on Mr Shaw in the course of the autumn. Some gardeners have deprecated altogether the necessity for root-pruning Vines at so young a stage, and contend that no substantial advantage can accrue from such a process. That the Vines in question have made extraordinary growths, the following results will, I think, suffice

Digitized by Google

to prove. The canes of Golden Champion, Buckland Sweetwater, Trebbiana, Alicant, Barbarossa, and West's St Peters were 3¼ inches in circumference; Black Hamburgs, Muscat of Alexandria, 2½ to 3 inches in circumference. The wood was short-jointed, well ripened, with very prominent eyes, and the admiration of all who had seen them. These are certainly remarkably fine young Vines, grown under no other peculiarity of circumstances that are not common enough, unless it be that they are close to the Newington Road, within reach of the din and dust and smoke of the town—certainly not advantageous peculiarities; and I am pleased thus to state that I believe in early root-pruning, and the many roots to begin with. J. HUNTER, LAMBTON CASTLE.

[We shall be glad to publish any theories that can be stated against such a beginning.—ED.]

CULTURAL NOTES ON BEDDING-PLANTS.

As the time is again at hand when we must be actively engaged in the work of preparing plants for the decoration of the flower-garden during the forthcoming season, perhaps a few hints on the spring propagation and after-treatment of some of the plants used for that purpose may be from time to time not unacceptable to a number of the readers of the 'Gardener.'

'The Handy Book of the Flower-Garden' has left little to be said on the subject. Still we think that, in a serial devoted to the discussion of gardening matters, the subject should be adverted to occasionally at proper seasons, especially as the requirements of one season may differ so widely from the one preceding, that no fixed rule can be made applicable.

It is true that the present style of flower-gardening entails an almost endless amount of labour. What with autumn and spring propagation, tending to their wants afterwards, planting, watering, cleaning, &c., the labour and care is continued almost throughout the circle of the seasons. Yet notwithstanding all that, we should be sorry to see the present system done away with. In many places plants with fine foliage or of graceful outline are largely used to tone down large masses of colour, and, when judiciously arranged, are very effective. Such are Wigandia carraccasana, Castor-oil plants, Solanums, some varieties of Palms, Cannas, Dracœna Australis, Cordeline indivisa, New Zealand Flax, Ficus elastica, and many others. It is only, however, when the beds are of considerable size, that many of them can be introduced among the other occupants.

With these few general remarks, we shall proceed with the subject in hand. And first, as standing at the head of the list of bedding-plants, we shall speak of the Geranium.

As a matter of course, every gardener will have propagated a stock of cuttings in the autumn, and plants of scarce varieties will likewise

Digitized by Google

have been lifted from the beds and potted up. These latter, if kept in a temperature of about 60°, will soon yield a crop of cuttings which, under proper treatment, will root freely as soon as of sufficient size. Those who have a propagating-house at their command, should find very little trouble with them. Take off the cuttings in the ordinary way when about 3 inches long. Either pot them up singly in 2½ or 3 inch pots, filled with good rich soil; make a hole with a blunt dibbler, put in a little silver-sand, insert the cutting, and fill the hole up with more sand; press all together, water through a fine rose, and plunge the pots up to the rim in the bed, with a brisk bottom-heat: they will soon root, when they may be removed to a cooler place, and gradually hardened off. Or the cuttings may be at once pricked out in a bed composed of two parts of silver or sharp river-sand, and one part of leaf-mould, pressed firmly together, and potted up when rooted. In this case it would be to their advantage if the pots could be plunged in the warm bed for a few days, until they got a fresh start, when they might be removed to a cooler place.

For those who have not got a propagating-house—and we are sorry to say that too many are so situated—a hot-bed, made up of leaves and stable-litter, may be made to suit the purpose very well. It should be made up in the most sheltered place available, and should be at least 4 feet longer than the frame, as many broader, and from 4 to 5 feet in height; the leaves and manure to be well shaken together, and trodden firm. The plunging material may consist of either tan-bark, sawdust, leaf-mould, or ashes.

The cuttings may be either potted up singly, pots prepared as above, or, to make the most of the space, they may be put into boxes or seed-pans, about 2 inches apart, and plunged up to the rim in the bed. If this latter mode be adopted, the boxes should be well drained; fill up two-thirds of their depth with porous soil, and the other third with silver-sand, in which to insert the cuttings. They should not be put in so deep as to enter the soil, but should almost rest upon it. When rooted, pot up and harden gradually off. Geraniums may also be successfully propagated by preparing boxes in the same manner, and setting them over the hot-water pipes, raised on two bricks or a piece of wood, in a house where the temperature is maintained at about 65°. A vinery at work suits well. Shading is not necessary. If the first batch of cuttings be kept in heat after potting, the tops may be soon obtained for a second batch, and thus a large stock may be raised before planting-time.

Of Scarlet Geraniums we consider Vesuvius, Glorious, Glow, Stella, Trenthan Scarlet, Violet Hill, and Trentham Rose to be the best sorts for general use. Vesuvius is unsurpassed as a bedding Geranium; good

Digitized by Google

habit, of a fine lively colour, the flowers of good substance, well thrown above the foliage, and set on stiff foot-stalks. It has the valuable characteristic of being a continuous bloomer through the winter, if the plants be lifted and potted before frost harms them; and where flowers are much in demand through the winter months, it will be found most useful. Of silver variegated Geraniums, Flower of Spring still retains the front rank. Fair Helen is a good dwarf variety for edgings or small beds. Bijou suits best for back-lines in ribbon-borders or large beds, as it is of rather rampant growth. Crystal Palace Gem is about the best of the Gold section, and old Golden Chain is also good where it does well; but Cliveden Yellow Pansy and Pyrethrum Golden Feather have in a great measure superseded this class of Geraniums. They are much less troublesome, and seldom fail to give satisfaction. Of tricolors and bronze varieties, Lady Cullum, Lucy Grieve, Mrs Pollock, and Sophia Kusack are about the best. Silver Tricolors, except for pot-culture, are not worth growing. Christine is still the best of the pink-coloured kinds—in fact, the only one worth planting out extensively; Wiltshire Lass, Rose Rendattler, Mrs Wm. Paul, and Christine Nosegay, are very good for pot-culture. The same may be said of the white-flowered and most of the salmon-coloured varieties. We think the above list will be generally satisfactory, but many other varieties are also good which we have omitted.

Gazania splendens may be treated at first in the same manner as we have mentioned for Geraniums. When sufficiently rooted, it may be pricked out into a cold frame. Mix in a good sprinkling of leaf-mould and sand with about 2 inches of the top-soil. Beat it gently down with the back of a spade, and put in the young plants about 4 inches apart. Water through a fine rose. Keep the frame close for a few days. Give air on all favourable occasions, and protect with mats at night until danger from frost be past.

Alyssum should also receive attention now. The cuttings should be pricked out into the bed of the propagating-house, and covered over with a sheet of glass. If the hot-bed be used, the boxes or pans may be prepared in the same way as for Geranium-cuttings, only the soil should be kept low enough in the boxes to admit of a piece of glass being placed over the cuttings until they root, when they should be potted up singly in 2½-inch pots, and plunged in sand or leaf-mould in a cold frame, kept close for a time, aired at favourable opportunities, and protected from frost. The roots of this plant being so easily broken off if they are left in boxes until planting-time, or pricked out in a bed like Gazania, get injured less or more when lifted; but treated as above, they receive no check, and well repay the extra care bestowed on them.

Digitized by Google

Ageratum Imperial dwarf and *Tropæolum Cooperii* root well treated the same way as Alyssum. When rooted, the Ageratum may be pricked into boxes, using pretty rich soil. The Tropæolum should be potted up singly in 3-inch pots, as it is rather impatient of having its roots much disturbed. Both should be kept in a warmish place until all danger be over from frost, when they may be put into cold frames to harden off.

Iresine Lindenii and *I. Herbstii* will succeed very well in boxes placed over the pipes. When rooted they may be potted up, or if space be limited, they may be left in the boxes; only in that case the boxes should be sufficiently drained, and made up with rich soil, with 1 inch of sand on the top, in which to insert the cuttings; or they may be put in thickly, and transferred to other boxes when rooted.

Cuttings of *Cineraria maritima*, slipped off the old stools, will root readily, treated as we mentioned for Alyssum. They should be potted up singly in 3-inch pots, as the roots are easily injured. Cuttings are whiter than seedlings are the first season. Altogether this plant is far superior to the Centaurea ragusina.

Towards the middle or end of the month, Verbenas, Heliotropes, and Fuchsias may be introduced to a warm house, so that cuttings may be obtained from them towards the end of February. They will be greatly benefited by a watering with weak guano-water about twice a-week, especially the Verbenas. *Polemonium cæruleum* may likewise be placed in a warm place, to start into growth previous to dividing some short time hence. Those who propagate their Lobelia by cuttings should introduce their stock plants into heat soon. J. G.

OBSERVATIONS ON CAULIFLOWERS.

In regard to this useful vegetable, the past few seasons have not been without their instructive lessons as to the soils and other circumstances most suited to its successful cultivation. From 1868 to 1870 inclusive, excessively dry summers have been the lot of at least a great part of the United Kingdom—a state of things very trying, to say the least of it, to the vegetable grower. Prominent amongst a goodly list of garden crops which suffer severely from drought stands the Cauliflower; and in very light soils the effects (which many a gardener knows no doubt frequently to his cost) are most clearly illustrated, especially if such soils be shallow and gravelly. The best, I had almost said the only, remedy in such circumstances is thick mulchings of the best material that can be spared—if rotten manure, so much the better—and copious supplies of liquid manure at stated intervals during the drought. In fact, unless the soil be approaching to deep clay, mulching may be judiciously practised with every hope of good results. In 1869 we found plants treated in this way far surpass those that had the benefit of the "latter rain," planted only a fortnight later. The old system of potting a number of plants in autumn, and protecting from frost in any cold plant-structure, is an excellent way of securing early produce; but they should

Digitized by Google

not by any means be allowed to get pot-bound, as is sometimes the case. This can be avoided by not using too small pots. Use 3-inch pots size instead of the smaller sizes, which are generally as often used. When weather is unfavourable for planting in spring, the plants suffer less from drought in the large pots. When dry pot-bound plants are put out, buttoning invariably follows. The past season here has been more favourable for second and third plantings than it has been farther east for the last three years, but late plantations have been a failure. I attribute this to the prevalence of heavy cold rains almost incessantly from end of June to August; while in seasons immediately preceding, the heat of the earth counteracted the cooling tendency of late rains, and these were therefore beneficial to late crops. The vegetable quarters here are objects of more interest to the proprietor than the plant-houses, which fact has led me to pen the foregoing notes on one of a variety of vegetables demanding most of our resources, and which may interest some of your readers. DAVID MACKIE.

DUNLOSSIT CASTLE, ISLAY.

PASSIFLORA PRINCEPS.

THIS is a very beautiful stove climber, and it does admirably well to be grown along with Stephanotis floribunda and Ipomea Horsfallii. We have a fair young plant of it here at present coming freely into bloom, covering the third part of a small plant-stove 30 feet long by about 18 feet broad It was only planted late in spring, a small specimen with a stem or two about 1 yard high, therefore a plant of it soon shows its full character. It is planted in a bed in the house the same as a Stephanotis, which is now also in good flower, in a compost of turfy loam and peat—about two parts of the former to one of the latter—with a small mixture of sand. The piece in which it is planted was well drained; and as the plant became vigorous, it had water enough to supply its requirements—vigorous-growing plants require water so much more frequently than others. As a beautiful stove climber, this may be said to have few equals—although no doubt the tastes of people differ—perhaps not even excepting the Stephanotis or the Ipomea above mentioned, even although it may not prove so valuable as either for cut flowers. Its leaves, which are three-lobed, of a fine light-green wavy appearance, are very pleasing, as well as the flowers, the latter being of a delicate red colour, to my mind very striking in a Passion-flower. The plant will continue flowering the greater part of the winter, and it is a subject that does not get so much attacked by vermin as do so many of our best plants. This Passiflora can give a fine idea of some rich tropical vegetation, with its ripe-like stems, which have risen and found their way across to various trees, which it crowns, to show us its fine racemes of flowers. When appearing in its full character in the height of the day, when its flowers are all expanded, showing their coronas and petals, I cannot conceive a more beautiful plant. ROBERT MACKELLAR.

ELVASTON.

Digitized by Google

THE CALANTHE.

This is one of the most beautiful, and certainly one of the most useful, of the autumn and winter flowering Orchids, and greatly recommended for general culture. It does not require any extra amount of knowledge to grow it, as any one who can command the temperature of a stove or Pine-pit can have them in flower from October to February. They are very useful for stove and warm conservatory decoration; and they make a fine display when seen, with their beautiful pendent flowers, standing on the front shelf of a stove, mixed up with dwarfer plants. They are also very useful for cut flowers, and for putting in stands, and more especially so on account of the length of time they flower and keep fresh after being cut. When used for the latter purpose, they will last a long time; if they are put in a glass with a little water, they will keep fresh for about a month. They are also very useful for stands; and when flowering-plants are required for this purpose in the months of November and December, a season when flowering-plants are generally very scarce, I know of no plant more useful.

There are several different varieties of the Calanthe, but the three finest are Calanthe vestita rubra oculata, Calanthe vestita luteo oculata, natives of Moulmein, and Calanthe Veitchii, a hybrid raised by Messrs Veitch. Rubra oculata has a fine large white flower with a red centre; the flowers are generally about 2 inches across, and from forty to fifty on a spike. The only difference between rubra oculata and luteo oculata is that luteo has a white flower with a yellow centre instead of red, as is the case in rubra. Veitchii is one of the most splendid winter-decoration plants; its flowers are of a rich rose-colour. The flower-spike generally grows to about 3 feet long, and when seen supporting forty or fifty of its beautiful flowers, it has a fine effect.

And now for a few remarks on their cultivation. Of course, to begin with, you must have the bulbs, and the finer and better ripened your bulbs are the finer your plants will be. You must procure some good fibry loam and break it up into small pieces, and then get some old rotten cow-dung; and be sure the worms are all taken out of it before mixing it with the soil, for if they are left in they are sure to work their usual amount of mischief. A good way of getting rid of the worms is to bake the dung before it is used. The other third should be composed of charcoal, silver-sand, and leaf-mould. When you have got all this ready, mix it well together. The pots should have been washed out a week before, to allow of them being thoroughly clean and dry. 6 and 8 inch pots will do very well, if the bulbs are not very large. It is very desirable that the pots should be

Digitized by Google

well crocked or drained, as the future welldoing of the bulbs will depend on this, for no plant thrives with stagnant water about its roots. 2 or 3 inches of crocks in the bottom of each pot, according to size, will be quite sufficient. The crocks should be covered with a little moss, to keep the soil from mixing with them, and opposing a free passage to the water. In filling the pots with the compost, it should be pressed firmly dawn. The bulbs should be put sufficiently deep to give them a hold of the soil, so that they may not be shaken out. Seven or eight in a 6-inch pot and ten or eleven in a 9-inch pot will be quite sufficient, but this must be regulated by the size of the bulbs. Place them in the stove or Pine-pit, where they will only require a sprinkling of water to settle the soil about the bulbs for a day or two, and water should be given very sparingly till they show signs of growth, which will take place in about a fortnight. When they begin to expand their foliage they should be syringed every day if it is bright; and care should be taken never to let them get too dry. Guano-water given once a-week will enable them to throw up fine green foliage. Towards the end of summer they will begin to throw up their flower-spikes, and when this is the case the syringing should be stopped and less water given; but they should never be allowed to get too dry, for if they once droop they never properly recover the check. When they begin to expand their flowers, they should be removed to a cooler house, where they will get a drier atmosphere; for if they are allowed to remain in a damp stove, they are sure to be disfigured by the effects of damp upon the flowers. They will do very well in a house where the temperature stands at from 55° to 60°. Water should now be gradually withheld as soon as the leaves begin to turn yellow, and when they have all been shed should be withheld altogether, and the bulbs ripened off for next year. If they are kept too damp after they lose their leaves, it will make them start into a second growth, instead of resting, as is necessary, till spring. If treated after this manner, they may be had in flower from October to February. This year we had some small bulbs in 6 and 8 inch pots which have doubled the size of the new bulbs, with ten spikes in a pot and from thirty to forty flowers on a spike: the foregoing is the manner in which they were treated. HEROS.

THE WEATHER OF 1871, AND ITS EFFECTS.

THE past summer has been a remarkable one for its variation of temperature. The preceding winter and spring were unusually hard and cold, more especially the latter, in which there were scarcely any of the genial showers that are so desirable at that important season for the well-doing of all vegetation. Under such circumstances it was natural enough to anticipate a good summer; but alas! these anticipations were only formed to be rudely blasted by the conflicting

Digitized by Google

elements, which manifested themselves freely in a remarkable degree of severity, in the shape of fierce, cold, hard, north-east winds, with more or less frost every night, till near the end of June.

Beech and other trees in tender leaf at that time had mostly all their tender foliage and terminal points destroyed by the frost. And the same destruction was less or more felt over most of Scotland, according to the lateness of the place or other local circumstances connected therewith. In such places, soft-wooded bedding-plants have had but a short season. After bedding-out time, and more especially in the early part of June, the dry, cutting, cold, north-east winds, with frost during the nights, and the hot sun during the day, together, played sad havoc with Verbenas and other small tender plants that were newly planted out. By the combined action of these two elements, we had both Verbenas and Geraniums that had their foliage nearly bleached white, but they soon recovered themselves again, from the fact of their being all strong healthy plants, and well hardened off previous to being planted out, an absolutely necessary and indispensable point to be attended to before success can be expected to follow. Since the latter end of June, the great amount of wet and cold that bedding-plants have had to contend with, have been in a high degree calculated to test thoroughly their real weather-bearing qualities, and a note of the most prominent of which may not be uninteresting to some of the now numerous readers of that most useful disseminator of practical knowledge, the 'Gardener.' Judging from what is being written about the localisation of plants, and practical observation together, they clearly show that to make sure of success in the present prevailing system of flower-gardening, we must really know the varieties that are the likeliest to suit different localities.

Among a number of the leading varieties of bedding Pelargoniums, Stella and Amy Hogg have stood pre-eminently at the top of the list of free-flowerers this season. Trentham Rose, Christine, Excellent, Glow, Glorious, Vesuvius, &c., have all come far short of their usual blooming characteristics; but all these broad fine-petalled sorts will never bear the tear and wear of rough weather equal to narrow-petalled sorts. We cannot say much about Vesuvius as far as our experience goes, but we saw it in glorious dress in these far-famed and splendidly-kept gardens at Archerfield, which reflect the highest credit possible upon their manager, Mr Kettles.

We hope the Pelargonium Lady Constance Grosvenor will sustain the high opinion formed of its superior qualities in the Lothians—viz., that it will displace Stella. Among silver-leaved Pelargoniums, Bijou, Flower of Spring, and Mangle's Variegated have been decidedly the best here. Mrs Pollock among tricolors, and Cloth-of-Gold among golden-leaved sorts, have been best. However splendidly the Golden Feather Pyrethrum may do upon damp clayey soils, it is utterly worthless upon very light dry soils. Gazania splendens is on the same footing in regard to soils.

Imperial Blue Ageratum is a grand acquisition in its class, being of a fine compact dwarf habit, and an immense free bloomer. This Ageratum and Koniga variegata are two plants that harmonise well together in colour, habit, and durability of flowering.

Senecio argenteus will be an excellent companion to the Alpine Arabis lucida variegata. These two plants will work admirably together.

Cineraria acanthafolia will certainly play its part in its class.

Among Verbenas the two "Kings"—crimson and purple—are the best for general usefulness, provided they are both well done to; and to have them in all their splendour, a thorough preparation of the soil is absolutely necessary.

Digitized by Google

We hear of Crimson King as likely to be outrivalled by a new-comer raised at Tyninghame, the fruits of Mr Lees' industry; and also that the same fate awaits Purple King at Drumlanrig Castle. In both cases, the names of the raisers are sufficient guarantee for the genuineness of the production. Certainly two such Verbenas will be a most decided acquisition, and we shall await with pleasure their advent into public service, and then give them a hearty welcome, for we must confess that we are passionately fond of good Verbenas.

Mr Greay of Brechin Castle Gardens has raised an excellent Verbena in the Purple King class. It is taller and not quite so compact in its habit as Purple King, but being of a more robust constitution, it begins to grow freely immediately it is planted out, and then it commences to develop in great profusion its fine *dark* purple, lemon-scented flowers. For a light soil and a dry season it is an excellent substitute for Purple King.

We cannot close these simple notes without referring to our favourites, the three varieties of East Lothian Stock, which, when well cultivated, never fail to play their part well in the flower-garden. It may be maintained that these Stocks are generally late in blooming, but to manage them in the following simple manner, either in beds or borders, will effect a good display of bloom from early summer till killed by autumn frosts. We plant them alternately in the rows, 18 inches apart, with a plant of the ordinary ten-week Stock planted between every two plants in the row, which come early into bloom, and which are over again by the middle of August or so. These we then draw out to allow the others to have full scope, and by that time they will have commenced to develop fully their fine large spikes of sweet-scented bloom. A. KEMP.

KEITTOCK GARDENS.

QUERCUS ILEX—TO TRANSPLANT.

AT p. 11 of 'The New Practical Gardener,' the Editor makes the following remarks on the Evergreen Oak:—

"Some people find it difficult to transplant in a young state, but we have it on the authority of Mr P. Robertson, of Edinburgh, one of our very first practical authorities on trees, that if it be allowed to remain in the seed-bed till it is 4 or 5 feet high, it will be found to have masses of roots, and can be transplanted with safety."

There can be no better authority than Mr P. Robertson on this matter, but it is a certain fact that nurserymen, as well as planters, find it difficult to transplant Evergreen Oaks, and often suffer much loss in the transplanting of this tree.

For many years I have been practically engaged in transplanting Evergreen Oaks, large and small, but my success has been far below that of any other tree that I have dealt with. I intend planting this tree in considerable quantity, and this prompts me to ask Mr P. Robertson, through the 'Gardener,' if he finds the practice, as above quoted, suitable in various soils, or only to a peculiar soil. Here, on the *black calp*, it is rare to find a lateral root; and with all the care that I can bring to bear on the work, many failures follow our transplanting. I do not here speak of what may be done, where opportunity occurs, of *preparing* such trees for transplanting. To the greater number of planters common practice must be the rule, and we would be glad to learn from Mr Robertson what he knows to be the best practice of transplanting Evergreen Oaks of a marketable size. Mr Robertson's notice of this will confer a favour on many others as well.

CHARLES M'DONALD.

PHŒNIX PARK, DUBLIN.

Digitized by Google

CYCLAMEN CULTURE.

By way of supplementing "Castle Semple's" remarks on Cyclamens in your November number, I forward a few hints on the way we cultivate our stock of them. My principal object in doing so is to bring the subject more before your readers, for I am convinced they are not so generally cultivated as their merits deserve. They require no more care or attention than either Cinerarias or Primulas, and most people who have grown them will at once admit that they are not less useful or beautiful than either of those plants. We have now in bloom a quantity of plants with from one to two dozen flowers, and a lot of buds to succeed them, in 4-inch pots, that were sown in October 1870. Any good seedsman can supply good strains of seed: ours was what is called Wiggins's strain, in the first place. But as our object has been to procure as many sweet-scented flowers as possible, we have these last two seasons saved our own seed. As soon as the first flowers open, we ascertain if they are sweet; if so (and at the same time good-sized blooms), we put them in a house by themselves for seed. About a dozen plants treated thus will supply as much seed as most people will require to grow. We find that the rubrum varieties are not so sweet as the lighter-coloured ones. The seed is sown thinly in pans placed in a temperature of about 60° in October, and kept in that position until well up, then we move them into a greenhouse until February. Any time during that month we prick them off, about 1 inch apart, in pans or boxes, in some nice light rich compost: when they cover the surface of the pans, we pot them off into small 60-pots, and place them in a close pit until well established, when we shift them into 4-inch pots, using a compost of two parts sandy loam to one part each of leaf-soil well rotted and Mushroom dung. I have not tried "Castle Semple's" plan of making a second sowing in December for a succession, as we generally grow our last year's plants for that purpose, and find them answer well. However, I will make a sowing at that time, as we find young plants throw their blooms up above the foliage better than old plants, especially in the winter-time. This season we selected about three dozen of our best plants, and gave them a shift into 6-inch pots early in September, but we do not find them throw up their flowers so well as those in the 4-inch pots. We also find it best not to cover the corms in potting for early blooming, for the same reason. Besides the beauty of their flowers, many of ours have much more handsome foliage than many plants grown for their foliage alone. For vases and general room-decoration they are particularly useful, as they stand well, and last in bloom a long time in those positions. We find them come into bloom best at this season in

Digitized by Google

an intermediate temperature; in fact, they will bear hard forcing, but it does not do to let them remain long in a high temperature, otherwise the foliage becomes drawn, and the footstalks of the flowers weak. Our stock of about 200 has been grown this season in a dung-pit, kept at an intermediate temperature. We damp them over with a fine rose, morning and evening, all the summer and early autumn. I agree with "Castle Semple" that the plants should not be dried off after the blooming season. Let them have a rest of six weeks or two months, then carefully shake off the old soil, repot in the same compost as above mentioned, and grow on for another season. Some of our three-year-old bulbs are 4 inches across.

NORTH HANTS, *November* 20, 1871.

EUPHORBIA JACKQUINIFLORA AS A CLIMBER.

WE have at the present time a plant of this beautiful plant *in full bloom*, trained on the back wall of a plant-stove. It covers an area of 160 feet, and bears more flowers of finer quality than I ever grew before on twenty plants *in pots*. Some of the wreaths are quite 3 feet in length, and the stems on which they are borne are as thick as a man's thumb. As it is not desirable to have the whole of the blooms so large, where cut flowers are an object, we adopt the pinching system. This is done when the shoots are about half-grown; every other shoot is topped, causing it to throw out a number of smaller shoots, which flower freely and are much more convenient for cutting purposes; besides, the plants look much more handsome than when bearing all the bloom at the top. I observe, also, that the pinched shoots retain their foliage much better at the base of the plant than when they are allowed to run at will.

I would strongly advise those who can command space, and have not already employed the Euphorbia as above, to give it a trial.

G. J. G.

December 14*th*.

HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY, December 6.—At this meeting there were classes for cut blooms of Chrysanthemums, Tree Carnations, Evergreens in pots, &c. The Chrysanthemums were past their best, but some good stands of mixed blooms were staged. Mr Rowe, gardener at the Rookery, Rochampton, took the first position with twenty-four blooms. Mr Douglas, Loxford Hall Gardens, Ilford, second; and Mr Goddard, gardener to H. Little, Esq., third. The best incurved blooms were Princess Teck, John Salter, Pink Perfection, Lady Hardinge, Princess of Wales, Golden and White Beverley, Lady Slade, Venus, Princess

Digitized by Google

Beatrice, Mrs Haliburton, and Mrs Heale. Japanese; Jane Salter, Magnum Bonum, Chang, The Daimio, Red Dragon, Bronze Dragon, Dr Masters, and Grandiflora. Messrs Standish, of Ascot, were the only exhibitors of Evergreens in pots. In the class for berry-bearing shrubs, they had green-leaved Aucubas in berry, Parnettia pilosa with black berries, P. mucronata with red berries, and well-grown plants of Skimmia japonica with berries. In the class for hardy Evergreens of the Yew and Cypress type, they had several species of Retinospora, Cupressus Lawsonianus fragrans, a compact and very distinct form of this useful tree, and Taxus fastigiata aurea, a distinct and highly-coloured form of the Golden Yew. First prizes were awarded to these collections.

Vegetables have taken a very prominent position at most of the meetings this year, but on this occasion only one collection was put up to compete for Messrs Carter's prize. It came from Mr W. G. Pragnell, Castle Gardens, Sherbourne, Dorset, and contained fine examples of Osborne's Beet, Victoria Potatoes, splendid James's Keeping Onion, Celery, Salsafy, Scorzonera, three varieties of Turnips, and eight of Carrots.

Fruit Committee.—G. F. Wilson, Esq., in the chair. A few of the productions were worthy of special notice. Two remarkably handsome Pine-Apples (smooth-leaved Cayenne) came from Mr G. Johnston, of Glamis Castle Gardens, Forfar, N. B.; the two weighed 16 lb. Messrs Lane, of Great Berkhampstead, also sent a splendid collection of Black and White Grapes, nearly as good as those that gained the Gold Medal at the "International," and no doubt cut from the same house. The cold water in close contact with the roots, if it is so, does not prevent them from keeping well. Special awards were made to both exhibitors. Mr W. Paul, the Nurseries, Waltham Cross, N., again sent his new white Grape "Waltham Cross" in good condition. The berries are immensely large, of a fine golden colour, and a good, though not a very rich, flavour; it seems to be a useful late Grape.

Messrs Sutton & Sons, of Reading, sent a dozen roots of the "new Orange Naples Garlic." It has the flavour of Garlic, but when the roots are cut across, they are of an orange colour, and have the appearance of an Onion. If adapted to our climate it may be useful. Mr Barron sent specimens of a new Radish, grown in the Society's Gardens at Chiswick, from seeds brought from California by Mr W. Robinson, of 37 Southampton Street, Strand. The roots were white, 9 inches in length, and from 7 to 8 inches round the thickest part. It is a new species to this country, and adapted to slice up for salads. A first-class certificate was awarded.

Floral Committee.—W. Marshall, Esq., in the chair. Continued and severe frost precluded the possibility of any novelties being exhibited in the way of tender plants. Mr Green, gardener to W. W. Saunders, Esq., sent Argyroxyphium Douglasii: it is allied to Senecio, and has short recurved leaves, white and downy; showing well by gaslight, it will be a nice addition to our table plants. Mr Goddard, gardener to H. Little, Esq., sent Cyclamen persicum, Queen of Crimsons: the colour is a deep crimson, slightly tinged with purple at the base; nothing has yet been exhibited approaching to it in colour. Both the above received first-class certificates.

Messrs Veitch & Sons, Chelsea, sent plants of Capsicum Yellow Gem. The fruits are very ornamental, of a deep orange colour, and this or a similar variety was stated by Mr Berkeley to be used in India for making a superior kind of pepper.

The Novelties in Fruits and Flowers for 1871.—The meeting of the Fruit and Floral Committee of the Royal Horticultural Society, noticed this month, terminated

Digitized by Google

a series of very interesting and successful ones. Taking a retrospective glance at the most important productions exhibited during the past season, there are some things of sterling merit, and destined to hold a leading position, let us hope, for many years to come. Fruits come first in order, and of Grapes we have Waltham Cross. It received a first-class certificate in 1870, and should its keeping qualities be equal to Trebbiano or White Lady Downes, it will be grown in preference to them, as I think it equal to either in flavour, and much superior in appearance. In contrast to this we have the Ascot Citronelle of Messrs Standish, and Dr Hogg raised by Mr Pearson, of Chilwell. The first named, though small in bunch and berry, is possessed of a distinct and very rich flavour. Dr Hogg is to all appearance the best of the Frontignan class, larger in bunch and berry than Duchess of Buccleuch, and not liable to crack; but according to the statement of Mr Pearson himself in a contemporary, "the flavour soon goes after it is ripe," which is a serious fault, as a Grape, to be of much value in a gentleman's garden, ought to hang in good order for weeks or even months after it is ripe. During the Strawberry season the weather was very unfavourable, it being so wet and cold; yet the Amateur, a variety raised and being sent out by Mr Bradley, of Southwell, Notts, the raiser of Dr Hogg, was shown fine in flavour and appearance. It is very productive, and has the appearance of being a good exhibition sort.

New vegetables have been produced in tolerable abundance, the Potato, the most useful and important of all, being specially prominent. I particularly noticed Veitch's Perfection, round, and Lee's Early Hammersmith Kidney: each in their respective classes stand A 1 for appearance, and will be valuable for those who exhibit at the early exhibitions; they are, moreover, of excellent flavour when cooked, which is after all the principal point in a Potato. Both are stated to be good croppers.

Passing from vegetables to new plants and flowers, these have also been produced in rich abundance. Take the Cyclamen persicum: this is now pushing to the front rank as a decorative plant for the greenhouse in winter, if it does not already hold that position. There are many gardeners who do not yet know the value of it, nor how easily it may be produced and grown. I sowed seeds of it in succession during February and March 1871, in a little bottom-heat in the Cucumber-house; the seeds were sown in a mixture of equal parts turfy loam of a friable nature, and thoroughly-decayed leaf-mould, with the addition of a little silver-sand: the young plants appeared in about three weeks, and as soon as the first leaf was formed they were pricked off singly into small thumb-pots. The plants were repotted as they required it in the same compost, and placed on a shelf near the glass in the Pine-house, where they remained all the summer, and were syringed overhead twice a-day. The plants now, December 12th, form a bank of bloom. I counted to-day on the largest specimens (which are in 6-inch pots) from 30 to 45 leaves on each plant, and as many flowers in bud, or fully expanded: they flower profusely all the winter in a night temperature of 45°. H. Little, Esq., of Cambridge Villa, Twickenham, has now 1000 plants in flower, and he has gained three first-class certificates during the season: each of the varieties is distinct, and of sterling merit—Snow-flake, pure white, fine form; Purpureum, rich purple; and Queen of Crimsons, noticed in another column. In the hands of an enthusiast like Mr Little, they are doubtless only the forerunners of other startling novelties.

In spring we had another surprise in the hybrid Amaryllis, raised by crossing with Hippeastrum pardinum. The best of the batch, and a splendid flower it is, of the finest form, is A. Chelsonii. One exhibited last year, and which likewise

Digitized by Google

gained the highest award, A. Leopoldii, is also a superb flower. A. maculata and A. brilliant are also distinct and fine.

The new scarlet forcing Pink, Princess Louise, must not be lost sight of where cut flowers of this class are required. Primula japonica, and its varieties splendida, alba, carminata, and lilacina, are superb additions to this class of plants. For cross-breeding purposes, in intelligent hands, they may be the parents of many novelties.

Amaranthus salicifolius.—This plant, introduced by the Messrs Veitch from Manilla, is, without doubt, the most distinct and striking new plant of the past year; and when exhibited for the first time at South Kensington on September 6th, was the object of universal admiration. It will doubtless be well adapted for out-of-door decorative purposes, as the plants exhibited were from the open border, and last season was a very unfavourable one for tender plants in general. But even if not adapted to stand the variableness of our fickle climate, it cannot fail to be useful as a pot-plant for greenhouse and conservatory decoration. Again, it is so distinct in appearance, and so well adapted for the purpose, that all who obtain plants should grow a few in 6-inch pots for the dining-table. One more use I would suggest for it, and that is as a vase-plant, for entrance-halls, &c. It is best described as a pyramidal form of Croton angustifolium, except that its graceful, wavy, weeping leaves differ from those of the Croton in colour—the older leaves being purplish bronze, orange-rose and purple being exquisitely blended in the younger leaves. It very properly received the highest award given by the Floral Committee for new plants.

In Orchids the Masdevallias are now being introduced from their cool habitats in New Grenada, Columbia, and the Peruvian Andes. Their culture is now well understood, and under proper treatment they grow like weeds. Two distinct species have been certificated this year—M. Lindenii, which was sent over in fine condition from Brussels; and M. Harryana, an allied species, yet sufficiently distinct. It has yet to be proven which is the best of the two. The Continental specimen was by far the strongest; the other was a recently imported plant. A distinct form of M. coccinea was also sent, from the collection of S. Rucker, Esq. I find the Masdevallias succeed best under comparatively cool treatment. They require a little more warmth than Odontoglossum Alexandria; 50° as a night temperature during winter suits them. The best structure is a narrow span-roofed pit, and the pots should be placed near the glass. I grow them in tough fibry peat and fresh sphagnum, equal parts; draining the pots well with clean, broken crocks. A 3-inch pot is large enough for a plant with five or six growths. This I plunge in a larger pot, filling the space between the two pots with fresh sphagnum, and surfacing with the same material. Keep the surface-moss in a growing state, and the plants will do well. I found it necessary, during summer, to remove them to a cold frame under a north wall.

We have a nice addition to Our Lady's Slipper in Cypripedium niveum. It is a lovely tufted species, allied to C. concolor. The flowers in some of the forms are pure white, in others more or less spotted. I have seen a dozen distinct during the summer, in the leaves as well as the flowers.

Florist Flowers, such as Pelargoniums of the different sections, Verbenas, Gladioli, and Dahlias, have been quite as numerous as usual, and in all of them progress has been made.

The Royal Horticultural Society's Schedule has come to hand for 1872. The usual fruit and floral meetings are continued. A great exhibition of fruit and flowers will be held at South Kensington, on June 5th, 6th, and 7th, at which five gold and five silver medals are offered for new plants. The Great Provincial

Digitized by Google

Exhibition is announced to be held this year in Birmingham, but the date is not yet fixed. And an International Fruit Show will also be held at South Kensington in November, for which the schedules are not yet issued, nor is the date fixed.

J. DOUGLAS.

REVIEWS.

THE GARDENER'S YEAR-BOOK, ALMANAC, AND DIRECTORY, 1872. By DR HOGG, LL.D., 171 Fleet Street, London.

This most useful annual is characterised by all the useful qualities of its former issues, having besides a considerable addition this year of the number of its illustrations of fruits and flowers, as well as views of several places of note in England. It is altogether a most useful and instructive shilling's worth, and every gardener should possess it.

THE FOOD JOURNAL. J. M. Johnstone and Sons, 3 Castle Street, Holborn.

We intended to have noticed this most interesting and instructive journal before now. The task which it has set itself is to expound the laws of social and sanitary economy, and it certainly is performing its task vigorously and well. Its record of food, and how it should be cooked; its exposure of the lamentable sanitary condition, and the more than lamentable effects thereby produced in our towns; and its exposition of all that has a bearing on the health and morality of communities,—would, if acted upon, prove one of the greatest public blessings that can possibly be imagined. It is a journal that should be in every household.

PROFITABLE AND ORNAMENTAL POULTRY. By H. PIPER. Groombridge & Sons.

To those who wish to become acquainted with the best way of rearing, and making poultry-keeping profitable, this is an excellent precepter, and is beautifully got up, and gives splendid coloured plates of all sorts of poultry.

Calendar.

KITCHEN-GARDEN.

THE purchasing of seeds for the ensuing season will now require attention, and the suggestions in a contemporary (that of sending early for the supply) is of considerable importance, both to purchaser and vendor of seeds. It allows more time to get the order executed, not causing so much extra work to employés in seed establishments; and it in many cases may prevent disappointment when seeds are to be sown early, after the order has been sent at the latest date. The seeds which have been left over when sowing was finished last season should now (if not already done during the late wintry weather) be examined, and a note of them taken; they can be proved by sowing a few in a small pot in light soil, placing them in heat. When they vegetate their true value can be ascertained, and what are worth saving can be kept for use, thus reducing the seed bill. Nurserymen are generally very particular in proving their seeds, so that it is seldom disappointment is experienced from bad seeds; the greatest difficulty is getting them true to name; and to give seeds a fair chance the soil should be well worked, and when damp and tenacious, old dry soil from the potting-bench or other useful stuff should be used, especially with small seeds sown early. Charcoal dust or rotten leaf-mould is excellent for early-sown seeds. Seeds which have

Digitized by Google

been grown on the premises should also be cleaned, and their true value tested. In the absence of a hot-bed or any heated structure, they can be raised as much as required in a warm sitting-room, such as we have often known amateurs to keep up supplies of Mustard and Cress in. The past season, being cold and wet, especially in England, was not one to fairly judge of the merits of some sorts of vegetables. Peas, especially some sorts, had not the best season for filling their pods well. Amongst the best we grew last year were M'Lean's Premier, Veitch's Perfection (but it did not fill so well as usual), Hundredfold (for quantity). Best-of-all was good in quality, and an abundant bearer; Laxton's Prolific and Laxton's Supreme were conspicuous for their large well-filled pods and abundant crop. For standing any kind of weather, Champion of England is still one of the best. Where early crops of Peas have to be supplied from sowings in the open ground, it is now time to make a second sowing of an early kind, such as Ringleader or Sangster's No. 1; and if weather should prove mild in the early months of spring, the January sowing will be nearly as early as the seed sown in November. When early seeds are sown on the surface of well-prepared ground, and covered with kindly soil, success is more certain than when scattered in the cold ground and covered up with heavy wet soil. Where there are means to sow Peas in boxes with turf placed at bottom, or in pots, tiles, &c., much labour and vexation from the ravages of mice, &c., may be saved. Red-lead or chopped furze placed with outdoor sowings of Peas often keep vermin in check. Spinach, where required, may be sown between Peas or on any sheltered border. Where there is plenty of Spinach from autumn sowings, supplies may be kept up from it till June. Cauliflower may be sown in boxes or pots, and kept near the glass with plenty of air; and when fit to handle, they can be pricked out into frames, or under handlights: they make a good succession to those sown in autumn. Good kinds are not always true to name; Frogmore Dwarf, Walcheren, and Veitch's autumn Giant are favourites with us. The last named, to be fine in flavour, should not be allowed to become too large. We look upon this sort as a valuable acquisition. Among Beets we had on trial last season, none were superior to Osborn's; Dell's and Carter's Perfection of Beet could not be distinguished from the first-named old kind. Sang's Selected and Dewar's were very good. Among Onions, Bedfordshire Champion was the best; Danver's Yellow, James's Keeping, and Brown Globe still hold their own. Among Broccolis (this vegetable is very difficult to secure true to name), Granger's Autumn, White Cape, Backhouse's Winter White, Knight's Protecting, Carter's Champion, and Gordon's Late are good kinds. Celery seems to be made to represent an endless variety in seed-lists, which we cannot discover when proved in the garden. Among the best we have tried are Dwarf Incomparable, Sandringham Dwarf White (which seems to be a careful selection of the first named), Manchester Giant, and Cole's Red and White. Lettuce for general purposes are London White Coss, Paris White, Imperial Coss, Bath Coss, Drumhead, and Hardy Hammersmith. Fresh seeds should be placed in cool quarters, where neither damp nor frost can reach them, and arranged so that their names can be easily seen. This will prevent disorder and save time. Where ground has been trenched up roughly, and is of a tenacious nature, it may be much improved by moving the surface with a steel fork when it is frozen. Where crops are cleared off, the space should be turned up roughly to the pulverising influence of the weather as soon as possible; former advice in this matter should be put in practice as early as possible. Turning much snow into wet heavy land is objectionable. In dry sandy ground it may sometimes do no harm. Early Dutch Horn Carrots should be sown in a mild bed if wanted early. Radish may be sown between the rows. Keep up successions of Rhubarb, Seakale, Asparagus, Mushrooms, as demand requires. Sprout Potatoes for frames. M. T.

FORCING DEPARTMENT.

Pines.—January, with its storms and low temperature, is generally a most trying month in this department, although now, with efficient hot-water apparatus, it is much less so than it was in the time of flues and fermenting

Digitized by Google

material. Should the weather be very cold, stormy, and dull, all hard forcing should be avoided, as one of the greatest evils to which Pines can be subjected. Low night temperature should still rule in all compartments containing succession stock. Whenever the external atmosphere is 10° below freezing, or when there is a high and cold wind, be content with the thermometer at 55°, unless indeed coverings can be applied to the glass, when 60° is preferable, especially in the case of all stock intended to be fruited off before next August. Last autumn suckers are perfectly safe at 55°, and better with that temperature than with a higher produced by hard firing alone. Keep a watchful eye on those of which we are now treating, and see that none of them get extremely dry at the root, especially where the bottom heat is entirely dependent on hot-water pipes. Much watering at this dull season is undesirable, but so is the extreme of drought. It is a good plan to slightly cover the surface of the pots with half-decomposed leaves or tan, in order to maintain a uniform state of the soil. Whenever, with sun-heat, the temperature rises to 68°, give a little air at the top of the house or pit, always avoiding currents of cold air. This should be done in the early part of the day, so that the house can be shut up with sun-heat early in the afternoon, rendering hard firing in the evening less needed. A parchingly dry and an overmoist air are alike undesirable, and for the present a sprinkling of the paths morning and afternoon will be sufficient. Get the necessary quantity of soil into some dry place where the frost can be kept from it, and at least for some time before it is required it should be put where it can have the "chill" taken off it; for if it be used in a wet state, the potting is not likely to be satisfactorily done. A rather heavy loam, with plenty of fibre in it, should be chosen; and it should just be teazed or broken up with the hand into pieces about the size of hens' eggs, keeping out the greater proportion of mould destitute of fibre that falls from it. Pines in a proper state of growth make large roots, like some orchidaceous plants, and never thrive well in an inert soil, but, like most other plants, always do best in a soil with plenty of fibre, firmly packed in the pot, so as not to be over spongy, and therefore capable of holding moisture in excess.

If those plants from which ripe fruit are expected by June have not been started, no time should now be lost in setting them in motion. Let them be plunged in a bottom-heat of 90° in the lightest structure which can be afforded them. Range the night temperature to 70°, except in very cold weather; then be content with a few degrees less, and take every advantage of sun heat so as to do the most of the forcing with light by day. Unless very dry at the root, and if the plunging material is damp, do not water them for the first 10 or 12 days; for if the plants have any disposition to grow instead of starting into fruit, the less water for a time the better. Early fruit must be had from those which start without making a growth, although those that do make a growth, and then start, always give the best fruit, but, of course, not nearly so early. Avoid overcrowding these in arranging them. In the case of Queens, which are best for starting thus early, the plants should rank 2 ft. by 2 ft.

Vines.—What has been said of hard firing in the case of Pines in severe weather, applies with equal force to Vines in the early-started houses. Avoid high night temperatures, except in mild weather, when they can be upheld without extreme firing. In the earliest vinery, which we shall suppose to be in bloom, in cold weather 65° is sufficient; in mild the temperature may run up to 70°. Take every advantage of bright days to give air in the early part of the day, shutting up with sun-heat to 80° or more for a short time in the afternoon. Atmospheric moisture should not be in excess in early vineries. Let it just be sufficient to counteract the parching effects of the artificial heat, and maintain it more by floor and path sprinklings than by any steaming-trays attached to the pipes. Stop the young growths two joints beyond the best bunch, and tie them down as soon as they reach near to the glass. In some cases the berries may be set and ready to thin by the end of the month, and thinning should be effected in the case of Hamburgs as soon as they are as large as Radish seeds. Where Vines are just broken about an inch, raise the night temperature to 60°, and disbud them as soon as it can be seen where the most promising appear-

Digitized by Google

ance of fruit is. Pay particular attention to the inside borders, and see that they neither get over-wet from frequent sprinklings, nor too dry from the lack of such. It is a good plan to have a few inches of half-decomposed leaves on the floors of all early vineries, to prevent evaporation on the one hand, and to absorb and give off the sprinklings on the other. This is a good time to start vineries to ripen Grapes in June. As previously recommended in these Calendars, there is not anything so desirable in starting all early Vines as a bed of leaves, with a little stable-manure mixed with them in the inside border, a portion of which should be turned over daily to give off moisture and heat. Vines will break more kindly with such treatment than with any other that we know of. Till the Vines are well broken into bud, they will benefit by being syringed twice daily with tepid water. Where the early crop is from pot-Vines, see that, with an increased temperature and more air, they do not suffer at the root for want of moisture; at the same time see that it is not possible for water to stand about the bottoms of the pots, or the result will be a thin flabby pale leaf. Thin off the superfluous bunches from all Vines immediately they are set, and avoid as one of the greatest errors heavy cropping; six good well-finished bunches of Grapes will always give more satisfaction than double that number badly swelled and coloured, with all the other ills that follow in the train of heavy cropping. All vineries started in the winter months should have the outside borders well covered to keep in the heat, and keep off chilling rains, and snows, and winds. 18 inches of fresh leaves or litter, and wooden shutters or tarpauling, are good appliances for this purpose. Look over-ripe Grapes that are still hanging on the Vines at intervals of two or three days, and remove all decaying berries. Keep the temperature steadily at 45°, giving air in all fine days to carry off moisture that may collect in wet and dull weather. Cutting the Grapes with a portion of wood attached to them, and keeping them in bottles of water in dry cool rooms, is now established as a successful practice. It is certainly better for the Vines, and in those days of numberless plants it enables the gardener to make more use of the Vinery than is possible while ripe Grapes have to be kept successfully on the Vines. Prune all Vines as soon as the fruit is cut from them, and remove all loose bark which affords harbour for insects. If red-spider has had a footing last season, scrub the rods with Fowler's insecticide, using a hard brush, avoiding of course the prominent buds in the operation. Unless in the case of early forcing, we have for some time discontinued the ordinary dressing of clay, cow-dung, &c., for the reason that it crumbles off on to the fruit in a sort of dust when top and front air is on in summer, or if syringed the same thing takes place in a worse form. Where planting young Vines is contemplated in spring, prepare compost and sites for the borders; avoiding shallow borders on the one hand, and all possibility of water standing or running among the roots on the other. Put in the necessary number of Vine eyes, either singly in 3-inch pots, or in pieces of turf, but keep them cool till the end of the month.

Peaches.—The Peach is a fruit that will not bear hard firing till after the fruit are stoned. With excessive firing the fruit frequently are cast off, and the crop of course lost. Where the earliest house is well set, range from 55° at night in cold weather to 60° in mild, with 5° to 10° more by day, according as the days are dull or sunny. Syringe the trees every day liberally at shutting-up time on sunny days. The Peach likes moisture, but not with a low temperature and dull atmosphere, or the result will be mildewed fruit and leaves too. Disbud the young growths by degrees, not removing the whole at one operation, but extending it to two or three, ultimately just leaving sufficient growths for another season's crop. Where the trees are in bloom, go over the trees about the middle of the day, and impregnate with a camel-hair brush, especially in the case of the Noblesse, a fine early Peach, but a precarious setter unless thus impregnated. Keep the temperature of houses expanding their blossoms at 55°, and give air on all fine days to prevent a weakly development of the fructifying organs, which militates against a good set. Some advocate a moist atmosphere, and even syringings when the trees are in bloom, and we have no reason to doubt their success; but we have never failed in a good set by keeping the house on the dry side, with a little extra air.

Digitized by Google

Start succession-houses at 45° to 50° to begin with, previously giving the inside border a good watering of tepid water, and covering the outside one as directed for Vines. Prune and tie succession-houses, making sure to well scrub all wood, stonework, and glass, painting the woodwork if necessary. Remove all inert soil from the surface of the borders down to the roots, and replace it with turfy loam and a few bones mixed with it. Young trees should now be planted where such are contemplated; and if those planted last season have grown over-strong, they may be lifted and replanted with their roots near the surface, if not done in the course of the last two months.

Figs. — Those started as directed last month will require an advance of 5° to 8° heat by the time they have broken into growth. Keep the bottom-heat steadily at 80°, and as in the case of Vines, let the firing be mostly done by day, during bright weather. The Fig loves moisture in nearly all its stages of growth, and therefore should be syringed with tepid water morning and evening. See that they are steadily supplied with moisture at the root, which will require to be more liberally given when they break into leaf. Rub off superfluous buds, and mulch those that have not been shifted with equal parts loam and horse-droppings. More plants may be put into heat for succession by the end of this month; which is also a good time to start Figs grown in borders in the ordinary way, from which two or three crops are expected during the year.

Strawberries in Pots.—Very early started plants will be in bloom this month. Let them have a temperature of 55° to 60°, according to the weather, with air on every favourable opportunity, but avoiding cold currents of air. We have noticed that Strawberries do not set well thus early if they are standing near a flue or hot pipes, and set best when removed from the source of heat, and at the same time from the ventilating openings. Introduce successive batches into heat, according to the demand and numbers of plants available; a Peach-house or Vinery shut up for firing is a good place for starting them in. Do not put saucers under them at this early season especially; at the same time keep them moist at the root.

Melons.—Sow for early crops in 65° to 70° of heat. A good way is to sow two or three seeds in a 5-inch pot, half filling the pot with soil; and as soon as it is seen which is the most promising seedling plant, to remove the others, and mould up the plant to the mouth of the pot when the plant has reached above it. A rather holding loam is best for Melons, and at this dull season it is not desirable to mix any manure with it, unless it be a little bone-meal.

Cucumbers.—Sow and treat the young plants as recommended for Melons, only let the soil be lighter, and rather richer. Keep them near the glass. The same temperature as recommended for Melons will suit them also. If to be grown on trellis-work they should not be stopped. Those that have been bearing all winter will now be benefited by a mulching of old mushroom-bed manure, with a little loam mixed with it. Keep them at 65° to 70° at night, according to state of weather. Cover the glass if possible, in preference to hard firing. Increase the supply of moisture as the days lengthen and light increases.

Notices to Correspondents.

We have again to crave the indulgence of those correspondents who have favoured us with their esteemed contributions, for which we beg to thank them, and which we are obliged, from want of space, to hold over till next month.

All business communications should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the

Digitized by Google

month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication, unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

The ROYAL HORTICULTURAL SOCIETY OF LONDON will hold its Committee Meetings and Shows on January 17th, February 14th, March 6th and 20th, April 3d and 17th, May 1st and 15th, June 5th and 19th, July 3d and 17th, August 7th, September 4th, October 2d, November 6th, and December 4th. The show of May 18th will last two days, and that of June 5th three days. The provincial show in connection with this society is to be at Birmingham this year, in Mr Quilter's grounds at Aston Park.

A great INTERNATIONAL FRUIT AND FLOWER SHOW is to be held in Glasgow the second week of September, under the auspices of the Glasgow and West of Scotland Horticultural Society. The very handsome sum of £1000 is proposed to be collected. We sincerely wish the committee all success, and trust they may be successful in securing a place suitable in all respects for such a gathering as is sure to take place on the occasion. The Caledonian Horticultural Society, which usually holds a show about the same date, has resolved not to hold one this year, but to hold one later in the season. This is so far calculated to add to the importance of the Glasgow exhibition; we trust both English and Irish fruit-growing, in particular, will be extensively represented on this occasion.

The MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY has resolved to hold monthly meetings at Manchester similar to those held at London by the Royal Horticultural Society, and to vote similar awards to meritorious productions. As Manchester is a great centre of wealth and of gardening, there is every reason for this resolve, and we trust it will be attended with every success.

SUBSCRIBER.—Six Stage Pelargoniums: Maid of Honour, Heroine, Corsair, Charles Turner, Emperor, Lord Clyde.—Six Scarlet Zonales: William Underwood, Lord Derby, Dr Lindley, Warrior, Grand-Duke, Lucius. Six Fuchsias: Alexandrina, Avalanche, Imperial White, Regalia, Bird of Paradise, Minnie Banks. The Messrs Smith of Dulwich sent out Pelargonium Glorius.

JOHN J. DALGLEISH.—Eriobotrya Japonica is a tropical plant, and to bring its fruit to maturity in this country it requires the heat of the stove. It can be grown either in pots or planted out. We should advise you to put it in pots. It comes into flower generally in the early part of winter, and ripens its fruit in spring. We cannot say whether it varies from seed, or whether it fruits best grafted; but it is easily grafted on any of its own genus.

W. C. LILLIESLEAF.—The Hedgehog and Warrington are excellent varieties, and not very large. They are of excellent flavour, and good bearers. The last named can be kept a considerable time after being ripe.

SEAVIEW LODGE.—The leaves of Mrs Pince Vine have behaved in the same way with ourselves, where other varieties have done exceedingly well. We have discarded it. Peaches, Nectarines, Plums, Cherries, Pears, and Apples all do well in an orchard-house such as yours. The reason why you have so much wood and so little fruit must be, that your trees are planted out and growing too strongly. Lift them and root-prune them, and plant again, or pot them, and you will find

Digitized by Google

them fruit. Get Mr Rivers's little work on Orchard-House Culture. The night-soil is more than likely the cause of your trouble with the Vines, and your roots being confined to it in the limited space makes matters worse. We hope we have replied to you properly, but we have great difficulty in reading your note.

A SUBSCRIBER.—After your Vines have made 3 feet of growth, inarch green wood to green, merely taking a slice half through off each about 2 inches in length, and adjust the one surface to the other, tying with soft matting. Clay is not necessary. The union will be perfect in four weeks.

J. W.—In centre of 1 put a plant of Yucca recurva pendula 3 feet high; then a circle of Mangle's Variegated Geranium, 6 feet in diameter; then 2 feet of Iresine, or what will stand your exposed situation better, Dell's Beet, and finish with two rows Golden Feverfew. 2, 2. Pink Geranium, such as Christine. 3, 3. Purple or Violet Verbena, Purple King, or V. venosa. The lobes of these four beds, which help to form your four corner circles next the pink with Allysum, and next the violet or purple with yellow Pansy or Gazania. 9, 9, 8, 8. Scarlet Geranium. 7, 7, 6, 6. Imperial blue Ageratum. 4, 4. Variegated Geranium, such as Flower of Spring or Bijou. 5, 5, Yellow Calceolaria.

ERICA.—Austiniana, Marnockii, Aristata major, Retorta Major, Obata, Tricolor Wilsonii, Cavendishii, Perspicuana, Actoni superba, Tricolor elegans, Hartnella, Ampullacea Barnesii, Ventricosa Bothwelliana, V. superba, V. grandiflora, V. coccinea minor, V. magnifica, V. Rosea.

A READER.—We cannot hear of such a book. Inquire through your bookseller.

Digitized by Google

THE

GARDENER.

FEBRUARY 1872.

COMPOSTS.

WITHIN the recollection of many of our readers there have been considerable changes in the details of garden practice. It can scarcely be questioned that the researches of science, and, to a still greater extent, practical observation, have within the last fifty years contributed their share towards an improved system of horticulture in general. It is quite possible —yea, probable—that in course of this advancement some points of practice have been lost sight of or set aside, that in these go-ahead days it might have been better had they been more generally retained and attended to than they are at present. Could our grandfathers be called up from the past to "dog" our footsteps through one year's practice, they would in many cases be at a loss to determine beforehand what points concerned us most, or to divine why we leave many of the practices and appliances of bygone days out of our calendars. But could their minds be divested of prejudice, their acknowledgments would doubtless be that substantial progress has been made, and that a gardener's duties have wonderfully increased, involving far more forethought and mental application and toil now than was the case fifty years ago. On the other hand, we might be constrained to admit the fact that, from whatever cause, we have lost some things which might have been advantageously retained. The enormous increase of work in what may be termed the fancy and ephemeral branches of horticulture have, beyond a doubt, told in many cases against the more common but substantial departments.

None can deny that the varieties of flowering-plants have vastly

Digitized by Google

increased and improved. Many new and some deserving fruits have also been gained, and the culture of all these is many times more general and much improved. Still it is astonishing how we yet cling to old and stereotyped practices and customs, without questioning why we do so. This is perhaps as applicable to the manner in which composts are prepared for potting various families of plants as to any other practice. Let any one peruse any or all of the horticultural journals: it will very soon be noticed that, ever and anon, the various writers have composts of particular and defined constituents to recommend for potting particular plants. So much peat and so much loam, so much sphagnum and so much fibry peat, leaf-mould, rotten manure, &c. &c., are yet the patent prescriptions which we are inclined to think ought in many cases to rank most conspicuously among, shall we say, the nostrums of the past? This mixture system has been so generally the tone of all practical writers on gardening, that the inexperienced have come to regard these different mixtures of soils for different plants as on a level with pharmacy.

In exceptional cases some very wholesome departures have been taken from the hodge-podges which at one time were regarded as the chief mysteries of the craft. In the case of the Pine-apple, we believe we are right in saying that our most regularly successful growers have ceased to manufacture the fatty compounds which, contemporaneous with the disrooting system, were regarded as almost the beginning and end of Pine culture. Turfy, fresh, and friable loam, without any addition of rank manurial substances, and having only a few bones added to it, is now recognised with considerable gain as the staple most suitable for Pines. In Vine-border making, too, it is yearly becoming a better-established formula that the less of anything, besides a good loam and a few bones, that is put into them, the safer and better it is for the Vines. So, too, in the case of hardy fruits, heavy doses of manure and leaf-mould have been abandoned; and it would be easy to enumerate more cases were it necessary.

Gross feeding in the earlier stages of plant life has in many instances come to be regarded as synonymous with unfruitfulness, and more than likely to be the prelude to premature disease and decline. A growth more slow and compact is found to build up a more fruitful and lasting superstructure, that more naturally and effectively performs all the functions of plant life. Assuredly if nature has any lessons to teach the horticulturist, one of her most conspicuous is, that she does not make provision for incorporating pasty manurial substances with the body of the soil where fruits are reared and giant products are built up. She applies her stimulants in another way, without infringing the simplicity of soils. The attention and assist-

Digitized by Google

ance of the cultivator can never be dispensed with, but it is questionable whether some of our existing practices do not depart too much in many cases from the simplicity which nature would teach us. In our composts we continue to incorporate highly-stimulating and semi-sloppy manures, and ram the pasty compound round the roots of delicate plants in small pots. And, then, strange to say, in the case of other and much more gross-feeding families, we rush to the other extreme, and administer such as sphagnum and wiry-looking handfuls of moss or peat. "Hairy peat and sphagnum moss," and "sphagnum moss and hairy peat," is the only variety ever recommended for many plants that would be thankful for something more in accordance with the order of nature. It would be hard to tell how much of plant derangement and disease originates from the compounds they have forced on them. The unnatural mechanical arrangement of soils is perhaps more involved in the work of mischief than the amount of plant-nourishment unnecessarily put within reach of plants at certain stages of their life.

Plants in fatty mixtures of soil may be compared to a human being who has long been accustomed to plain but wholesome and substantial food, and has built up a healthy and well-compacted frame, but who under mistaken kindness is at length supplied with heavy stimulating food and drink, which puffs him up a mass of bloated flesh, all the more liable to disease and to succumb to its attack, unless by some means the system is reduced to something more like its normal condition. There is of course no rule without exceptions, and in the range of the vegetable kingdom there is immense variety. The beauty and utility of many plants depend upon rapid growth in one short season, as it were, by forced marches and extra rations. Such, for instance, is the Balsam, and other plants of which it is the type; unless they are freely grown in rich, highly-stimulating soil, they fall below their standard of beauty. It so quickly intermingles its greedy roots with a potful of compost, that there is little fear of poisoning it, or making its soil unhealthy mechanically, with an ordinary amount of rapidly-decomposing manure. It belongs to a class that rushes up rapidly into maturity, performs its allotted work, and sinks back into mother earth again. But all the more noble and long-living types of flowers and fruit-bearing plants are reared more slowly, and with much more consolidation of tissue, and continue for a length of time to extend their roots into fresh and simple maiden soils, while in many cases they supply their own stimulants by dropping their leaves as top-dressings. This latter, we are convinced, should be more our guide in the culture of many of the denizens of our gardens.

Take as representative plants the Camellia and the Orange, and in

Digitized by Google

reference to them we are certain it is a mistake to mix with the compost for them so much pulpy rich substances in the shape of rotten manure or leaf-mould, as is very frequently practised and prescribed. When such plants are potted or shifted, they do not rush to maturity, nor interweave the soil with a dense network of roots, in a few weeks. They do not even continue to grow rapidly without intermission, like many evanescent and soft-wooded plants. Their roots, likewise, discontinue comparatively to extend themselves at intervals; hence the evil of supplying them with inert rapidly-decomposing substances which are not only mechanically unsuitable in themselves, but when incorporated with the loam, reduce the whole potful of soil more or less to a similar condition, which in gardening phraseology is not inappropriately termed "sour and unhealthy." It would be easy to refer to other plants which are very commonly met with, unhealthy and suffering from this derangement of soil consequent on rich and sodden mixtures. If maiden turfy loam were used without these inert and souring manures, their chances of health would be much more certain, because loam in an unadulterated form is not half so subject to derangement when not fully possessed by roots as when it is compounded with dung and leaf-mould, while at the same time fresh fibry loam contains all the elements of plant-life in perfection. When it is desirable to enrich it, half-inch boiled bones can be added without any fear of injurious mechanical derangement; and when it can only be obtainable of a more clayey character than is desirable, it is easily rendered more open by the addition of pounded charcoal or charred soil. And after a plant has occupied the whole of a potful of such soil, and so far exhausted its nourishing properties, it can be very safely and effectively supplied by rich top-dressings and manure-water when a shift into a large pot is not desirable.

The advantage of this arrangement of soil in young Vine-culture is very conspicuous. The character of young Vine-roots made in a compost largely made up of rotten dung or leaf-mould is entirely different and vastly inferior to those made in a good loamy soil not having anything mixed with it except a few bones or bone-meal. In the case of the former the roots are long, thick, glutted-looking objects, comparatively destitute of lateral rootlets, seldom get properly ripened, and the wood of the Vine is generally of a long-jointed plethoric character. In the latter case the roots are formed in dense twiggy masses, permeating every morsel of soil, which in the case of Vines to be planted out the following season we need scarcely say is of first-rate importance. And when they are intended for fruiting in their pots, the roots and ball of wholesome loamy soil are in a much more healthy and substantial condition, and much more capable of making the best

Digitized by Google

use of rich top-dressings and waterings, than when the ball consists of rich pulpy compounds containing a few long straggling ill-matured roots.

We are so thoroughly convinced that the hodge-podge system of compounds is in many cases a positive evil, and in others not necessary, that we should be glad to chronicle in these pages the experience of those who have stepped more or less out of the old run of mixtures, and have had experience of the more simple and undebased soils.

NOTES ON HARDY CONIFERS.

PINUS.

In this important section of the Coniferæ we have a large number of evergreen trees, remarkable not only for the great value of their timber, and the useful secretions which they produce, but for their extreme gracefulness and the grand picturesque effect which they impart to the landscape, either when massed by themselves, or blended with other trees of different appearance and habits.

The species are easily distinguished from other Conifers by the great length of their needle-shaped leaves, which, in common with those of the Larch and Cedar, are disposed in sheaths containing a greater or less number, according to the sort: in the case of the Pines they are grouped in bundles of two, three, or five, forming a convenient and sufficiently constant character for reducing them into three distinct sections.

The flowers are produced in catkins, the male and female being on the same plant, but separate. The cones are for the most part oval in shape, and vary in length from little more than 1 inch to about ½ foot. While the trees are young, and grown as single specimens, they have, with a few exceptions, a handsome conical form, and are regularly furnished with branches from the ground upwards; as they approach maturity, however, the under branches gradually die off, and the trees become broad and bushy at the top. This change is brought about earlier when they are grown close together, so that, if it is desired to maintain the conical form for the longest possible period, careful thinning, so as to give the branches the full benefit of light and air, is absolutely necessary.

There are few soils in which Pines will refuse to grow, and even thrive, if the subsoil is dry, and the land well drained; and as the roots never penetrate deep into the ground, but run immediately under the surface, they are found to do well in situations where the soil is so shallow that most other trees would not find sufficient sustenance. It is, however, always to be remembered that a good rich soil is the best, and most likely to secure their highest development.

Digitized by Google

Taking into account the great array of hardy species and varieties in cultivation, and the fact that the great majority of them are highly ornamental, and eligible for admission into the best-kept grounds, it is difficult to make a small selection of desirable sorts; and though those we are about to recommend are really fine, it is necessary to say that there are many others which ought to be grown where circumstances admit.

Austriaca—*Austrian Pine*—is a noble tree, introduced in 1835 from the calcareous mountains of Lower Austria and the Black Forest, where it attains a height of 120 feet: in this country it has been found to grow freely in almost every variety of soil, as well as in the most exposed situations, and is one of the few evergreen trees that will thrive within the influence of the sea-breeze. It is consequently invaluable for shelter, and should be extensively planted for that purpose. It recommends itself to landscape-gardeners for forming dark backgrounds, or for mixing with lighter-coloured trees. When grown singly it spreads out its branches regularly, and becomes a most symmetrical specimen tree. The leaves are usually in pairs, glossy green, and from 4 to 5 inches long.

Benthamiana—*Bentham's Pine.*—This magnificent tree was introduced by Mr Hartweg from California in 1847, where he found it rising to a height of 220 feet. It has proved perfectly hardy in this country, and makes a handsome ornamental tree, requiring a rather rich loamy soil, and the ground well drained. The leaves are in threes, about 11 inches long, of a dark-green colour, thickly covering the branches.

Cembra—*Siberian Mountain Pine.*—A peculiarly handsome, rather slow-growing tree, found wild in the highest regions of the Alps, in Eastern Siberia, and in many other regions in Northern Europe; growing from 60 to 80 feet high. It was introduced about the middle of the last century, and has proved thoroughly hardy, preferring strong loamy soil. It grows well under almost any circumstances, and forms a neat conical specimen, with the branches regularly arranged round the stem, and densely clothed with leaves. The leaves are in fives, from 2 to 3 inches long, and of a fine glaucous-green colour.

Excelsa—*The lofty Bhotan Pine.*—This remarkably handsome tree forms large woods on the Himalayas, attaining a height of 150 feet; from whence it was introduced in 1823. It is perfectly hardy in this country, and at all stages of its growth is one of the most attractive of the tribe. The leaves are of a shining, silvery-white colour, from 5 to 8 inches long, set in fives, and covering the branches so densely as to give the whole tree a soft feathery appearance.

Laricio—*The Corsican Pine*—is an erect-growing, lofty tree, introduced from Corsica in 1814, where it is found in great abundance, as

Digitized by Google

well as in Calabria and several countries of Southern Europe. It grows from 80 to 120 feet high, and forms a grand pyramidal tree, of rapid growth, and produces most valuable timber. It is perfectly hardy in this country, and is the least liable of all the Pines to be attacked by hares and rabbits. It grows well in most soils, but most freely on such as are light and sandy. The leaves are in pairs, from 4 to 6 inches long, curiously twisted, and of a dark-green colour.

Muricata—*The Bishop's Pine.*—This very distinct Pine was introduced from Upper California in 1848, where Dr Coulter discovered it at an elevation of 3000 feet, and within 10 miles of the sea-shore. It seldom exceeds 40 feet in height. It is perfectly hardy in this country, and forms a neat dense conical tree. It prefers a deep rich loam and dry subsoil. The leaves are usually in pairs, not very thickly set on the branches, from 3 to 4 inches in length, stiff, rather broad, and of a deep-green colour. It is a very interesting species.

Strobus—*The Weymouth Pine.*—A tall tree, found abundantly on mountains from Canada to Virginia. It attains a height of about 150 feet, and produces the timber known as Canadian white Pine; it was introduced into this country in 1705. It is perfectly hardy here, and becomes a straight handsome tree, with short branches regularly arranged round the stem when young, but gradually dying off as it increases in height. The bark is smooth, and of a light greenish-grey colour; the leaves are in fives, from 3 to 4 inches long, very slender, and of a glaucous-green colour. It grows freely in light loamy soil if well drained. The variety Nana is a miniature of the species, never growing above 2 or 3 feet high, with a flat tabular head, and is an interesting and desirable ornamental plant. HUGH FRASER.

BULBS AND ROOTS FOR FORCING.

OF all bulbs for forcing the Tulip is perhaps the most showy and useful, the most easy to force, and therefore, also, the cheapest. For the earliest lot to come in about Christmas, we have long used the double and single Duc van Thol, especially the former, growing them in threes in 4-inch pots; they can be used as ribbon edgings in the conservatory, or pulled to pieces for edging vases in rooms. Tournesol and Rex rubrorum come in next, and a few dozens of Vermilion Brilliant, a grand Tulip, but somewhat expensive; dozens of it can only be used where hundreds of the others above may be ordered. Rose Aplatis, Kaisers kroon, yellow and white Pottebakkers, Parrots, indeed any sorts, will come into bloom with slight forcing after the middle of January. All should be potted the first week of September if possible, using fibry loam, with a liberal use of sand, and plunged overhead in sawdust or sand in a dry situation exposed to the sun; the autumn solar-heat forwards these and all bulbs wonderfully, much better than coddling them in cellars and mushroom-houses, &c. Duc van Thol stands very hard forcing, which would utterly spoil some of the others.

Digitized by Google

Hyacinths are the favourites among bulbs for exhibition purposes, and are scarcely second to Tulips for decoration; they are not quite so pliable under early forcing as the Tulips. Grown in glasses, the Hyacinth, we think, will generally beat those grown in pots in the race: they should be potted in 4-inch pots, same sort of soil as for Tulips. We never could see any advantage, but the contrary, in using dung in the soil for very early forcing; attention to watering is of more importance than a rich soil. In buying Hyacinths for decoration, we order them in three colours, mixed varieties in each colour, unnamed: they are cheaper, and answer our purpose well: there are varieties which come in earlier than the bulk of them, La Candeur and Hannah More among whites, Homerus and L'ami du Cœur among reds. The earliest of all Hyacinths is the white Roman Hyacinth, if it be a Hyacinth at all: they are very sweet: the bulbs not being larger than good-sized Crocus bulbs, should be planted four or five in a 4-inch pot: they will throw up two or three little spikes each, and come into bloom in November. The Hyacinths should be removed from out of doors the end of October, and placed in a pit with a slight bottom-heat of about 70°, and kept covered overhead until the spikes of bloom are advanced about an inch, when they should be uncovered, and afterwards well attended with warm water. Hyacinths are not always tolerable in rooms, their scent being too powerful to some; they, however, make a nice effect in baskets, turned out of their pots, and arranged tastefully according to their colours, edging them with Tulips, Dahlias, or Snowdrops: they last many weeks in the conservatory, and should be tied loosely to stakes as they grow. If Hyacinths in glasses be forced in heat, the water ought to be changed often, as it is liable to become putrid: that attention is not necessary if the glasses be in a cool situation; a bit of charcoal in the water is a good sweetener. Narcissus are not favourites with us for forcing—they occupy too much space for the result in flowers; they are, however, very sweet, and favourites with the ladies, and, when well done, will yield a long succession of florets; Paper White, Grand Monarque, Soleil d'Or, Double Roman, are good for forcing: if care be taken of the foliage after they have bloomed, they may be forced for years in succession: they must have abundance of light, and not be over-hard forced, to succeed well, and will have to be removed from the plunging material earlier than the Hyacinths.

Crocuses and Snowdrops are very impatient of forcing. They are best plunged in a cold pit, having frost excluded, or they may be stored in a cool airy greenhouse near the light: fire-heat and drought quickly spoil them. The double Snowdrop is a most useful decorative plant in spring, and can be worked into many arrangements in stands, baskets, and table-decorations: planted in a carpet of green toothed Lycopod, it is elegant. It forms neat edging for a choice boudoir basket. Scilla præcox, another elegant little flower, is a fine companion to the Snowdrop, and stands forcing better: it may be had earlier in bloom: it, with the Snowdrops and Crocuses, should be planted quite thickly in the pots, say six bulbs to a 4-inch pot.

The above are the most popular of the so-called Dutch bulbs used for forcing. There are others equally useful in their way which flower in winter with slight forcing. Among those we shall mention, first, the Lachenalia tricolor, an exceedingly pretty and profuse-blooming plant; its leaves spotted, and with erect spokes of drooping flowers. It is very easily managed. The bulbs should be selected and potted; when they show signs of growth, soon after midsummer—six or eight of the largest bulbs in a 4-inch pot. Sandy loam or peat suits them; or they may be grown in the same pot, without disturbing the balls, with rich top-dressings. They must be kept out of doors until October, when they

Digitized by Google

should have the protection of a frame or pit. Kept near the glass, they can be in bloom in January and onwards. Withhold water as the foliage decays, when they should be kept quite dry by turning the pots on their sides out of doors until the bulbs again show signs of growth. This is a Cape bulb, and almost hardy. We have tried several hundreds out of doors this season. Oxalis.—Of this genus there are hosts of species, more or less showy, from the Cape; but the only one we care much about for winter pot-culture is Tricolor, with a profusion of beautiful striped flowers, which fold up during night and dull days, but is even then beautiful. It also lasts even a longer time than the Lachenalia. We have had a lot in bloom for more than two months. It should, being a Cape bulb, be managed in every way like the Lachenalia. Sandy peat suits it best, and it must have plenty air and light. It makes a handsome single plant for a small vase or for edging larger stands. Amaryllis aulica and Johnsonii are most showy and useful Cape bulbs for coming in bloom in winter by a little management. They, like all Cape bulbs, require a period of rest and dryness, after which they flower: when flowering is done, they should be encouraged with a moist, warm atmosphere in a pit to make healthy foliage, which should be well cared for until it shows signs of ripening, when the bulbs should be gradually kept drier. They may be started for bloom about the end of September and October. Eucomis purpurea, another Cape bulb, is very handsome for winter—bold spikes of brown and green flowers, and the foliage very handsome. It is easily managed, like the other bulbs mentioned above. We have no doubt that there are other Cape bulbs useful for winter, but the above we are most experienced in.

Turning to roots for forcing, the most important is without doubt the Lily of the Valley. Imported clumps are now very cheap, and are most satisfactory for forcing; but it is not convenient in all gardens to buy even these every year, and it is not necessary. They can be forced years in succession in the same pots, by taking particular care of the foliage when the blooms are over, and thinning out the weak crowns; plunging the pots in ashes in a partially-shaded situation; top-dressing them, and attending particularly with water until the foliage is ripe. Some dozens of them, forced last year, are now finely in bloom this first week in January. We plunge them overhead in sawdust on a gentle bottom-heat, until the blooms, like the Hyacinths, are about 1 inch out of the sheaths, when they are removed into the light in a warm house. Lily of the Valley will often refuse to start its growth if merely placed on shelves to the light in a dry house. It should be remembered that all spring flowers delight in moisture about them, and in contact with them.

Hoteia Japonica, *alias* Spirea, *alias* Astilbe, is a most useful forcing subject, quite hardy, and may be treated in the same way as Lily of the Valley; but an easier plan is to plant out the forced plants in early summer in a prepared piece of ground, taking particular care of the foliage, and attending to them with water throughout the summer. In November they may be lifted and potted whole, or the clumps divided; plunging them in a warm bed of leaves for a few weeks, when they may be removed near the light in an airy house, when they begin to show their leaves. This is an exceedingly useful plant for any purpose, and can now be bought very cheaply. The old plants may be thrown to the rubbish-heap if labour is scarce: as the plant is so cheap, this would be the most economical.

Dielytra spectabilis, an exceedingly graceful plant for vases and general decoration, is as easily propagated as Rhubarb. By planting pieces in lines in rich soil, which may be lifted and potted as soon as the foliage dies down,

Digitized by Google

plants of any size may be grown. When potted, the pots should be plunged in a bed of warm leaves, in a pit or frame, when the plants soon make fresh roots. It should be forced slowly, and with abundance of moisture, and can be had from January to May in succession. In May the forced plants may be planted out for the summer, to be again lifted in November, or they may be grown on in the pots, with particular attention to watering; but the former plan is best. THE SQUIRE'S GARDENER.

WIRING GARDEN-WALLS.

I CAN fully endorse all that Mr Dawson says in the December number of the 'Gardener' in favour of wiring garden-walls. We have over 600 yards of wall here, 12 feet high, all wired with No. 12 galvanised wire, and it is a great improvement on the old system of nails and shreds. After eight years' experience, I have every reason to say that none need be afraid to use it. There are Peaches, Plums, Pears, Cherries, Currants, Apricots, and Gooseberries all trained to it, and there is not the slightest appearance of it injuring the bark, the trees being all beautiful and clean, free from the green bands so often seen on trees that are trained with nails and shreds. Although the cost is a little extra the first outlay, a very few years soon balance it in not having large bills for nails and shreds coming in. A. H. THORESBY.

EFFECTS OF BOTTOM-HEAT ON PLANTS GROWING OUTDOORS.

THE following facts are of sufficient practical importance, I think, to merit attention, and some of your readers may probably have something further to say on the subject.

Late in the spring of 1870, we had occasion to move a number of somewhat stunted common Laurels that formed part of a bank. Some of them were planted about the pleasure-grounds in ordinarily favourable situations, but as the season was very dry they made be said to have survived only without making any growth. Last year ('71) they recovered themselves and made about 6 inches of young wood generally. I state these facts for the purpose of comparison. Another lot of the same plants were planted behind a lean-to melon-pit, on north aspect to hide the brick-wall, and, so far as soil and situation are concerned, under less favourable circumstances than the others. Instead of remaining dormant the first year, however, they started into growth immediately, and by midsummer had made a luxuriant growth, when they rested a bit and then made a fresh start again, finishing a still more luxuriant growth about the end of October, and growing two distinct growths on every shoot, each about 1 foot in length, and which any one unacquainted with the circumstances would have pronounced decidedly to be two years' growth; the first growth having all the hardness and maturity of a last year's shoot. As the later growths were soft, and as last winter was severe, I fully expected they would be killed by the frost; but they suffered no injury whatever, while the Laurels in other places were browned considerably.

Last summer ('71) they again made two distinct growths, adding to their stature from 3 to 5 feet in two years. Now for the secret. The pit against which the Laurels are growing is kept at a high temperature all the year round, and the ground where the roots of the shrubs are is about a foot or more

Digitized by Google

above the level of the path inside the melon-house, hence the warmth to the ground outside for nearly 4 feet from the wall.

I tested the temperature of the soil among the roots of the Laurels, about 2 feet from the wall, and found it to be 46°; while in an open bed, a few paces off, the thermometer stood at 39°: this was about the end of December last.

I think it is Dr Lindley who somewhere discusses the probability of plants having the power to resist a considerable degree of cold when their roots are in a comparatively warm medium, the theory being that the heat is communicated to the stems and leaves through the roots. The facts I have stated would seem to bear out such a theory; and, no doubt, similar instances might be recorded. Some of your readers will perhaps remember a paragraph which appeared in a contemporary some time ago, recording ripe Strawberries in the open air early in May, if I recollect aright, in Yorkshire. This was true enough, but their earliness was due to a strong bottom-heat, originating from nothing less than a coal-pit on fire. We saw the Strawberry patch in question last summer, and found the plants blooming and bearing then, in a bottom-heat of 85° or 90°.

With such facts as these before us, we may reasonably suppose that such things as Apples and Pears, &c., might be safely and advantageously treated to a higher root-temperature, when growing out of doors, than is naturally communicated to the soil under ordinary conditions. There can be little doubt that, with their roots in a comparatively warm temperature, the trees would be able to resist a greater degree of cold when in bloom, and we may be sure the fruit would be earlier and better ripened. Here, on the extreme limits of Pear-growing, we have been cogitating on the practicability of heated borders for the better kinds of dessert Apples and Pears. We would propose to plant in quantity dwarf pyramids in rows about 6 feet apart, and would furnish bottom heat by means of 2-inch hot-water pipes; a single row of pipes being laid under each row of trees, burying them in the subsoil, say 4 feet from the surface. This would be ample heating power, and the depth at which the pipes lay would prevent all danger from accidents to the roots. Mulching the surface would of course be advantageous in various ways, and be a means of economising the heat. I am not aware that anything of this kind has been tried yet; and these are only suggestions, which I leave your readers to discuss.

WORTLEY. J. S.

[Along with this we have received a shoot of Laurel from Mr Simpson, showing the two distinct growths, each about 1 foot in length.—ED.]

HINTS FOR AMATEURS.—FEBRUARY.

FRUIT-TREES may in many places have been left unnailed or untied, and this practice we think in many ways commendable when the object has been to get other important work forward, such as ground turned up preparatory for spring work (as advised in Kitchen-Garden Calendar); and when days are longer and warmer, the work among fruit-trees is done more speedily, and with more comfort to the workman: by observing the direction of the wind when it is cold, a sheltered portion of the wall may be chosen, and much advantage will be gained, both for comfort and speedy work. Many of these little matters seem scarcely worthy of note, but most practical men are alive to their value,

Digitized by Google

and amateurs will, by comparison, learn their worth. It is the neglect of small matters which so often keeps garden-work so far behind, and causes great failures when such might be avoided. Apricots may be pruned any time now. Cutting out old wood, and leaving enough of well-placed young shoots to furnish the wall without crowding, is the principal object to be kept in view. Spurs placed closely to the wall and well loaded with buds are of most value on an Apricot-tree; they are generally certain to bear. Nothing should be allowed to grow straight out from the wall, and crowding of wood is sure to cause failure. Peaches may remain unnailed till March; if fastened up by careful hands, no buds will be rubbed off; by keeping the wood late off the wall there is double the chance of securing fruit. When pruning is performed, the shoots left for bearing should be kept as near as possible to the main branches; and if it was stopped back in summer to where it is to be pruned now, there will be little fear of absence of a wood-bud to lead up the sap. As a crop of Peaches is a fair one when they will average a foot apart all over, a very thin furnishing of wood will give abundance of fruit; and where flavour and high colour are valued, wood and foliage thickly matted on the tree are sure to frustrate that object. The washing of trees with Gishurst compound, Fowler's insecticide, or other preparations, should not be delayed till the buds are opening. Where flower-buds are very thick and the wood weakly, the buds might be thinned to an inch apart, or wide enough to allow the remaining buds to expand freely. This we give strict attention to, especially early trees which are in flower in December and January. It has been observed elsewhere in the 'Gardener' that extra attention to training is not necessary to good cropping: neither it is, but as we have a love for decency and order, and can train a tree as quickly into a good form as a bad one, we would say, Train well, and have fruit-buds from base to top of walls; and where a wall is not filled up with the tree, train a single or double cordon of a Plum, Peach, Cherry, or any other fruit that is desirable. There is plenty of time to see to this yet, though attention to it in the autumn is better. All battered surfaces over the roots of fruit-trees should be well broken up; and where the growth is stunted, good rotten manure might be forked in, allowing the roots to remain untouched. Protection for fruit-trees may now have attention. Wide boards projecting over the tops of walls are of great service. When trees are kept dry they are not liable to so much injury from frost.

As the season advances, increased attention to order and high keeping in flower-gardens and pleasure-grounds must be kept in mind. Where lawns are become bare and thin of good grass, a good dressing of manure, earth, and a little lime may be given, and allowed to remain

Digitized by Google

to the action of the rains till the end of March, when a rake might be applied, levelling the surface, and taking off any rough material. After this is done a sowing of good lawn-grass will be necessary. Regular rolling for a time will make an excellent surface. All flower-beds and borders, not occupied with bulbs, shrubs, annuals, &c., should be frequently turned over. Where the soil is of a heavy tenacious nature, winds and frost will do wonders in making it mellow before planting-time arrives. All beds where spring flowering-plants are growing, will be benefited by having their surfaces well stirred. Protection to bulbs in the open ground is necessary. Though the bulbs are hardy, they are liable to injury, and do not flower so well when frost has had full play over them. Annuals may be sown in frames, on a bed, or in pots or boxes, for planting in the flower-garden. Prune, tie, and regulate all flowering-plants on walls. Roses should have a number of young shoots left in, to take the places of older ones. Though Hybrid Perpetuals and some others do well with spurring, they wear out in time, and fresh shoots always invigorate. Root-pruning is often necessary for keeping plants in moderate growth on low walls. It should not be delayed much later in the season. A few Roses in the borders or beds may be pruned soon, especially China sorts. Close pruning does not suit them. Let all small, worthless wood be cut clean out; and if the stronger wood is pegged down, a fine display of flowers will be had. Keep the principal stock of Roses untouched with the knife till March, or later. Our best supply is generally had from those pruned in April. Lateness is also an object with many. Mulching is of primary importance, and its unsightly appearance can be covered up with any clean earth from the kitchen-garden. The practice of mulching, so strongly advised by the Rev. Reynolds Hole, is objected to by many, who say, "Who would have mulching in a flower-garden or border?" It can be easily covered with clean earth from the kitchen-garden, or any field where there is clean soil.

Dahlia roots may now be examined, and if the stock is to be increased, the roots may be placed in gentle heat to spring, keeping the names securely to the roots; and when the young shoots are an inch or two long, they may be taken off with a "heel," and potted into small pots, using sandy soil. Bottom heat will soon cause roots to form, and they can be shifted on and hardened by degrees like other bedding plants. Tops taken off Dahlias propagate freely, but require more attention than when taken off with a small piece of old root attached. All bedding plants to be propagated are the better of being some time in warmth before the cuttings are taken off. All propagating may be pushed forward now without delay. Where manure and leaves are plentiful, good heat for increasing the stock of plants is

Digitized by Google

always within reach. Where amateurs and others have no glass or heat to increase stock, the old plants should have every attention to encourage free growth where they are. Let plants be ever so tall and unsightly when planting season arrives, they can always be made to answer their purpose by planting on their sides, and pegging them out. Sometimes proper soil cannot be had for the plants; a substitute can be had by taking in a portion from the garden which has been turned up to the weather; keep it dry, and mix with charcoal and sand when used, allowing extra drainage in the pots. Carnations and Picotees to flower in pots may have their last shift soon: the soil requires a thorough handling to find any wire-worm, which are certain destruction to this class of plants.

Auriculas may be all looked over on a dry day, their surfaces made clean by clearing away wasted soil from the surfaces of the pots, and a dressing of good rich stuff given, allowing room for watering the roots. Hyacinths, Tulips, and all other bulbs to flower in pots, must be well protected from frost. However hardy a plant may be when left to itself in the open ground, its constitution is greatly changed when grown in a pot. Mignonette in pots must have all the light and air possible: taking the lights entirely off in fine weather keeps the plants sturdy. Chrysanthemums may now be propagated by cutting or dividing the old plants, choosing the strongest growths, and potting them as small plants, using sandy loam at first, and increasing the soil in richness as the plants get larger. Cuttings root readily in a gentle heat, but care is necessary to prevent the young plants drawing up weakly. These plants are often propagated in autumn, and grown on steadily; but experienced growers generally seem to be more in favour of winter and spring propagating. Fuchsias, to supply cuttings, may now be taken into heat, watered to get the dry soil moistened: when the growths are long enough to supply cuttings they are easily rooted in a moist heat; a frame answers well. The old plants, when they have supplied the cuttings, may be taken out of their pots, a large portion of the old soil taken away from the roots and then repotted into smaller clean pots, using good turfy loam, a little leaf-mould, and sand. They require rich soil when placed in their flowering-pots. Every class of plants which flower in summer and autumn will now be starting into growth: they should have a shift before their roots become pot-bound, and a very large pot to save frequent potting is not in conformity with good plant-growing. Herbaceous Calceolarias are liable to suffer from want of room in their pots: they do well with a liberal shift into well-drained pots: they are very liable to the attack of green-fly; tobacco-powder dusted on the under sides of the leaves and about the collars of the plants is

Digitized by Google

very effectual in destroying the vermin. If structures, rooms, windows, &c., are to be furnished with flowering-plants during summer, a stock should soon be got ready—Shrubby Calceolarias, Zonale Geraniums, Lobelias, Verbenas, Petunias (especially the double kinds), may be selected and kept free from the bedding stock. They do good service in summer and autumn. A number of greenhouse or some of the finer kinds of hardy Ferns are excellent for mixing with other common flowering-plants. All forced plants, such as Lilacs, Roses, Hardy Azaleas, Deutzias, Thorns, Rhododendrons, &c., when done flowering, should be kept protected, as they are (when in tender growth) easily destroyed by frost. As later plants show flower, they should be taken to drier and cooler quarters. Lily of the Valley may now be forced by any one with ordinary means: a warm room will answer till the flowers begin to show; then light and fresh air are necessary; fumigating should be performed before insects become established, and if the plants infested are few, they might be taken into a small room or other structure and fumigated. Camellias, Azaleas, and similar plants should be examined frequently and kept free of insects. Scale may be washed off effectually by Clark's insect-destroyer. Plants in general will require watering more frequently: always give enough to moisten the whole ball of earth in the pots.

M. T.

THE CULTURE OF FERNS IN WARDIAN CASES.

(*Continued from page* 26.)

Before proceeding to fill the case with soil, it is necessary to lay a good foundation of hard porous material for drainage in the bottom of the inner pan. Broken flower-pots, in pieces not less than an inch in size, porous sandstone, or roughly-broken charcoal, with the fine particles sifted out, are suitable materials for this purpose, and at least one inch deep of one or other of them should occupy the bottom of the pan. On the top of this place a layer of some fibrous material, to prevent the finer parts of the soil becoming mixed with and choking it up. The fibre should be just so thick as to conceal the drainage, and it may be composed of sphagnum moss, hair, or wool, or if the soil is of a very fibrous character, the roughest parts of it may be used in greater quantity than the other materials, after it has been well shaken in a ¼-inch sieve to cleanse it from loose dust. These preliminaries completed, it is well to consider, before filling in the soil, what form it is necessary or desirable the surface should take when it is finished. The surface may be varied according to taste and the requirements of the different styles of growth of the kinds of ferns that are to be planted in the case. But I would here take the liberty of protesting against the very general tendency to overdo surface variations in the limited area of a Ward's case. Many parlour gardeners appear possessed with the idea that it is impossible to cram too many geological nick-nacks, shells, and bits of glass into their cases. With cement and fragments of rock from various formations, they build up crags with impossible peaks and projections and inconceivable arches, having as little

Digitized by Google

resemblance to any real crag in their form as in the historical sequence of their component parts. And not content with these ridiculous fancies, they scatter similar fragments on the surface in what is supposed to be becoming profusion and disorder till the case assumes more the appearance of a contrivance for exhibiting interesting splinters from various quarries and gleanings of shells from the seaside, along with sundries from the glass manufactories, than of a plant case, the plants enjoy so little of the space and claim so small a share of attention. All this kind of furniture of a Ward's case is in bad taste and unreal, besides being often a positive drawback both to the appearance and proper development of the plants. The simpler and less ostentatious the undulations in such a small area as that of an ordinary plant case, the better will they accord with the dictates of good taste; and they will also be better adapted to the wants of the plants; and this latter is the first and last object to be kept in view by the parlour gardener in taking his measures for filling the case. Ferns vary much in style of growth: some are erect, some tufted, some drooping and graceful, and all these may be stemless. Others are creeping, and love to cling to stones and stumps rising above the soil in which their roots ramble, or to be suspended in baskets or on a prominent cleft made by placing two stones of porous character together, whence the creeping stems may descend all around. There are climbing or scandent Ferns which must have something to cling to and cover in the way of more common climbing plants, and there are Tree Ferns which may have a place in Wardian cases while they are not too large, the peculiar growth of which is most appreciable because it is best seen when they are planted on the top of a mound raised somewhat sharply above the general level of the surface of the case: this is especially necessary if a mixed collection is grown together. When all this variety of habit is considered, it becomes obvious that there should be some diversification of surface in the case, in order that suitable stations may be provided to show the true character of each kind to the best advantage; but, this object accomplished, there should be no further straining for surface effects. A block of porous sandstone or charcoal may be set on the top of the drainage where it is intended to plant a creeping or trailing kind that requires such a substance to trail over, and the block may be covered or not with soil according to the manner in which the plant fastens itself to the substance on which it grows. Some species, as Pteris scaberula, require a little soil in which to push along their creeping rhizomes; others, as the Hymenophyllums, readily fasten themselves moss-like, on any moist porous surface, however hard. Scandent or climbing Ferns, like Lygodium palmatum or Japonicum, may be provided with trellis-work, or with a light stump of charcoal furnished with a few snags and a rough surface, offering points on which the clasping leaves may lay hold. For Tree Ferns mounds may be raised chiefly composed of soil, but the sides may be kept up by pieces of porous stone or charcoal embedded in them and slightly protruding above the soil. At the base of such mounds close dwarf-growing creeping kinds may be planted and encouraged to cover the sides; or the smaller-growing Selaginellas may be used in the same way to clamber among and cover the projectin points of stone or charcoal. Stemless species are best placed on the lowest surfaces, in the centre or front of the case, according to their respective heights, the taller ones occupying the more distant or background positions of course, and the dwarfest the front. These hints will serve to direct the attention of tyros in the art of parlour-gardening to the all-important point of making themselves acquainted with the peculiarities of habit of each of the kinds of Ferns they intend cultivating, before they attempt any disposition of the surface of their cases.

Digitized by Google

Due attention given to this point they will find much more improving to their taste than any amount of labour bestowed on the manufacture of artificial rock-work, and it will tend also to extend their knowledge of the wants of the different species in a cultural sense.

The depth of soil required by ferns in the comparatively confined atmosphere of a Ward's case is smaller than if they were growing in a more airy structure. Evaporation is less active and more equable, and consequently a thin stratum of soil is less liable to sudden variations in the quantity of its moisture. There is indeed some danger in having too much soil of it becoming sodden under unskilful watering, especially if it is close and deficient in fibre. When it is so, in addition to taking extra precautions in securing sound drainage by increasing its depth, more sand should be used in the soil. But for the largest ferns that may be cultivated in Wardian cases of ordinary size, the depth of soil need not exceed 5 inches, and the smaller ones in many instances will be well suited with even less than half that depth.

The best time to make a commencement in the cultivation of ferns in a Wardian case is about the end of March or the beginning of April. By that time most species are beginning to grow, and are more easily established then than at any other time. For this reason it is also the best time to renew the soil or rearrange the plants in one that is established and stands in need of these processes. If the plants have outgrown their allotted space, it becomes necessary to break up and replant them. But if not, and the drainage is sound, it is better merely to remove the surface-soil as deep as possible without inflicting general disturbance on the roots, and to replace it with fresh soil. After planting or rearranging the case it is necessary to keep it somewhat close and shaded from bright light till it is observed that the plants are growing, when they may be gradually accustomed to a freer circulation of air. During this time also give water but sparingly. As much water may be given immediately after planting as will settle the surface without saturating it, but till the plants show signs of active growth only gentle sprinklings overhead will be necessary after bright drying days, or when the surface of the soil appears somewhat dry.

When a case of Ferns is fairly established and growing well, it will require daily attention. The points to be observed in order to maintain the plants in perfect health are adequate supplies of water, to be given only when wanted, not on the principle of daily bread. If the soil remains moderately moist, even if days intervene between the waterings, be not alarmed: let well alone. Plants, unlike animals, have their supplies of food continually before them, and if the earth contain moisture enough to dissolve that food, they are constantly imbibing it. A medium supply of moisture is most favourable to this end: saturation or drought is equally opposed to it. Frequent driblets are objectionable: be assured that water is wanted before giving it, and then give sufficient to moisten, not to saturate, the mass of the soil. Towards the end of the year, and during the short dark days of winter, less water will be wanted than in active stimulating summer-time; but even then drought must be guarded against as well as drenchings. The next most important point to be observed is airing the case. Few Wardian cases are sufficiently aired. Film ferns, some Todeas, and others which require to have a highly moist atmosphere maintained about them, are impatient of currents of dry air, and are therefore only fitted for cultivation in a structure devoted to themselves. But miscellaneous collections, such as are commonly grown in the parlour, should have a pretty free circulation. A little close observation of the behaviour of the plants under

Digitized by Google

different conditions of airing will soon enable the cultivator to come to an understanding of their wants. No rule can be laid down except that the extremes of too much and too little are equally injurious. If the case is too airy the growth becomes stunted and weather-beaten in appearance; if too little so, it becomes weak, sickly, and pale, and the glass of the case is constantly loaded with condensed vapour, which is easily dispelled by admitting a little air. But the quantity of air that may be admitted at one time depends on the state of the air of the case, as well as that of the room in which it stands. If both are dry, little or perhaps no air may be required; but if the air of the case is moist, which will be ascertained by the amount of moisture deposited on the glass, enough ventilation to carry off the superabundance of vapour may be given, taking care that it is not continued long enough to cause flagging or shrivelling of tender leaves.

The remainder of this subject, along with selections, will be given next month, in time to be of use to those who are contemplating the pleasure of attempting the growth of Ferns in these plant-cases.—W. S.

ROGER'S VICTORIA RASPBERRY.

THOSE of your readers who have not got the above Raspberry should supply themselves with a stock of it at once. Its property of bearing two distinct crops in the season renders it a very desirable variety to cultivate. I am aware that other varieties, perhaps equally as good, possess the same property, but I can speak from personal experience of the above. It is a strong-growing variety; and if the young canes be kept thinned out to about six or seven of the strongest to each stool, they will grow to 6, 7, and even to 8 feet. As soon as all the best fruit is gathered from the canes of the previous year, they should be all cut out, and the young ones tied up to the stakes, leaving them at their full length, or nearly so. The advantage of that will be, that some of the top eyes will throw out laterals bearing clusters of fruit, which comes in very useful in the autumn months. Afterwards they may be headed down to the usual height of 4 or 5 feet. From a small quarter treated as above during the present season, I was enabled to gather a good "sonsy" dish almost every day from the end of September to the middle of November, when 14° of frost put a stop to it, though plenty of fruit were still hanging. Had it not been that we gathered all that was required for preserving from the first crop, abundance could have been had for that purpose from the second. I may state that the fruit of the second crop was as good, if not even superior, to that of the first.

J. G.

GARDENING IN AMERICA.

(*Continued from page* 29.)

IT is not too much to say that any unmarried gardener who is careful can get together in a few years from one to two thousand dollars. What is the best thing he can do with such a sum? Unhesitatingly I answer, He should go into business for himself; and if after he has done so he is as industrious and as anxious to rise, equal to every occasion, as he was when toiling for others, he is sure not only to make

Digitized by Google

a good and independent living, but to acquire a competency before the autumn of his days arrives. Every little town in the Union can furnish examples of prosperity originating in this way. About twenty years ago, a youth from "o'er the sea" landed in New York, without a friend, and with a pocket all but empty. After being snubbed a few times by the "counter-jumpers" in the seed-stores of that day, he at last got employment, and from that he kept steadily on his course until he got together about five hundred dollars. He then went into market-gardening on his own account, and just now he cannot be worth much less than a million dollars. The man I refer to is Mr Peter Henderson of New Jersey, and a better friend of the striving emigrant who follows old Adam's business does not exist than Peter. And I may add that during moments snatched from vast business transactions, Mr Henderson has found time to write his 'Gardening for Profit' and 'Profitable Floriculture,' two of the most valuable books that have ever appeared on the subjects of which they treat.

An industrious man could get along nicely in the vicinity of any large town in the Union, if he did nothing but grow Scotch Kale well and extensively. There is no kind of garden vegetable which does not bear a good price in the markets of America. Here in Lexington, during the present year, the wholesale price per head for Cabbage will not average less than sevenpence, Lettuce not lower than threepence, Cauliflower as high as eighteenpence, and Celery sevenpence per root. These figures are perhaps a little too high for the North, and for further South may be a little too low. Then again in the case of small fruits, Strawberries, from the open ground of course, never sell here for less than eighteenpence per quart, and sometimes twice that price, whilst Raspberries have been equally high. In short, anything requiring a little trouble and knowledge in its production is sure to be remunerative. The commonest Scarlet Pelargoniums, just nicely rooted and potted off, can be readily disposed of at a shilling a-piece, and this applies to the other inmates of the greenhouse. Before now in the vicinity of New York, where there is powerful competition, Mr Peter Henderson has sold an acre of Cauliflower for about £1100. It may be thought that it costs a great deal to support a man here: not so, for all the main staples, such as beef, bread, sugar, coffee, butter, milk, and the like, are as low as they are in England; and just now I pay but fifteen shillings per week for the best of board.

The ease with which in this country a skilful workman can commence operations on his own account, is in itself quite sufficient to account for whatever drawbacks American horticulture presents. Generally speak-

Digitized by Google

ing, a gentleman, however good and kind, and liberal too, cannot count with any degree of certainty on being able to retain the service of his gardener; and when he parts with a competent man, before he gets the like again he may have to experiment with a score of individuals, all of whom are absolutely worthless. For be it known that in this land of freedom, broken-down bricklayers, carpenters, tinkers, and sailors, take to gardening whenever their own trade is in the least dull; and the founder of one of the largest seed-stores in New York was once a little nailer. The fact is, a man here should never say of anything that he cannot do it. Under such circumstances, what encouragement is there for a rich merchant to fix up expensive glass houses, and fill them with costly and beautiful plants?—not a bit of encouragement; and until the Far West is filled up, and outlets no longer exist for any superabundant population which may arise, and the market gets overstocked with the kind of labour desired, things here will be as they are; and I for one hope that the day is far distant in this country when a man will have to "beg a brother of the earth to give him leave to toil."

My task is now nearly accomplished, and I have but one opinion respecting America. I am bound to regard it as a grand country for a poor young man, whose head and hands are his only reliable patrons and friends; and the longer I live in it, the better I like it. Yes, even the "budding curator" who lands on these shores, and is industrious and steady, may learn to regard himself as not so ill-starred after all, and can soon afford to be sneered at by any over-wordy scribe who has the immodesty, not to say impudence, to be continually constituting himself the judge of the works of wiser and better men.

I would not recommend men over forty years of age, and who are married, to come here. The men are not so bad, but somehow ladies whose years are more numerous than those just named never take kindly to America. I know one old lady who has been in this country over thirty summers. Her sons are all prospering, and one of them is a very distinguished man. Still the old lady thinks that Scotland has no equal for anything or any purpose, and at this moment "Her heart's in the Hielands, her heart is not here." It is altogether too bad to see the young and strong driving the old and feeble away from homes and institutions amongst which their habits have been confirmed. Besides, the young in the vast majority of cases can do far better by crossing the Atlantic than by staying in the land of their birth, to swell the market for the benefit of the capitalist. Strike out, then, you with the strong arm, stout heart, and veins full of fresh blood, and give the brave old fellows a chance to hold up their heads, to stay where they are and be happy!

Digitized by Google

If you have got a wife and some children, bring all with you; and do not forget to come in the spring, when plenty of situations are vacant. Pitch right on the first chance, remembering that no kind of toil is in itself dishonourable here, and people will soon find out what you really are, and trust you accordingly. Yankees take nothing for granted, are good judges of character, and like to have a look at you, but care hardly anything for the fine certificates which you have preserved with so much care, and collected with so much trouble. I was going to say, if you are not married, but leave a sweetheart behind, do not let the New England girls cause you to forget her.

Start in some of the eastern States, and remain there until you have made a nice little pile of money, and then steer for the south or south-west. The native inhabitants of these parts, as already observed, are rather behind in the matter of knowledge, but still they are not a bad sort; and in any case, the less your neighbours know, so much the greater are your chances of success. Settle near or in a town of not less than five thousand inhabitants, and set to work for the time being at whatever brings in the most cash. Keep your eyes open right wide, and with your savings by your side you will soon get a good opportunity of purchasing a place of your own, where you can profitably prosecute the calling you love best, where you need regard no man as your master, and where you can go steadily and comfortably along during the remainder of your life. And even though botany is no longer regarded by those supposed to be competent judges as essential to the highest kind of curator, yet the "budding curator," who in days gone by gave some little attention to such subjects, may surely find plenty to engage his leisure moments in a country so rich in wild flowers as this.

A few more words, and I have done for the present. Above all things, and from the very beginning, avoid John Bullism—that is, if you wish to live in peace and be respected. Sympathise with as much as you can of what you see going on around you; and when you hear your Yankee neighbour magnifying this great land of the west, telling of rivers and waterfalls the broadest and longest and deepest in the "univarse," never you mind so long as he robs you of nothing rightfully yours. You need not love your native land the less because you abstain from what is hateful to the people amongst whom your lot is cast. You may feel convinced that as yet there is nothing in all America to compare with the "parks, promenades, and gardens" of London and Edinburgh, but you need not be continually reminding every one within your reach of that. The educated and wealthy citizens of this country are but too glad to meet with strangers who

Digitized by Google

can introduce improvements, but they detest everything brought forward in company with a censure on the United States.

Another time, with the Editor's permission, I may say a little more on matters relating to gardening in America. JOHN DUNCAN.

LEXINGTON, KENTUCKY, U.S.

PROPAGATING CHINA OR TEA-SCENTED ROSES.

THE beautiful China or tea-scented Roses may be had in 48 or 32 sized pots, with five or six blooms on them in the autumn, if the following management is carried out. Every one loves the queen of flowers; and what lady would not be pleased to have them in the drawing-room or boudoir, with their rich tea-scented blooms? This can very easily be done with a little patience and trouble, for which they will amply repay. Now is the time to place an old plant in sufficient heat to make it grow, and when it has produced shoots about 3 or 4 inches long, they should be taken off (using a sharp knife) with a piece of the old wood attached; or, in other words, with a heel. A number of 2½-inch pots should be got ready, and filled within half an inch of the rim with the following compost: one-fourth friable loam, one-fourth of leaf-soil, one-fourth of cow-dung, and one-fourth of sharp river-sand—the whole to be well mixed up together. The remaining half-inch to be filled with sharp river-sand, and the whole to be pressed moderately firm in the pot. With a dibbler make a hole in the centre of the pot, and insert the cutting. If the sand is dry, some of it will trickle in the hole with the cutting, which will be an advantage. Press the soil firmly around the cutting, and then give it a good watering, which will make the cuttings quite firm in the pots. They should then be placed on a shelf in the stove or intermediate house, and shaded during sunny weather for about a fortnight. It is a good plan to sprinkle the leaves twice a-day with water. The soil should not be allowed to get dry at any time. When the cuttings begin to show signs of growth, they should be gradually inured to the light. When they have filled the pots with roots, which will be in about six or eight weeks, they should be shifted into 4 or 6 inch pots, whichever size would be most convenient for the grower, using a compost two-fifths loam, one-fifth leaf-soil, one-fifth good rotten dung, and the remaining part good sharp river-sand. The plants must still be kept in heat, and in a good healthy growing state, and well supplied with water as soon as they are pot-bound. They must be kept growing until about the latter end of April or beginning of May, when they should be placed

Digitized by Google

in a cold house or pit to harden off, previous to being placed in the open air. When sufficiently hardened off, they should be placed in front of a south wall, in the full sun. During the summer, they must not upon any account be allowed to suffer for want of water. About the beginning of September they will be showing their plump flower-buds. Liquid manure must then be applied twice or thrice a-week. An ounce of guano to a gallon of water makes a good liquid manure for them.

G. Warren.

Balcombe Place, Sussex.

NOTES ON SUCCULENT PLANTS SUITABLE FOR OUTDOOR DECORATION.

Few if any class of decorative plants are more deserving of attention than that of the Sempervivum. Their great vital energies enable them to withstand the most scorching heat or intense cold, and still maintain all their beautiful hues of colour. Such capabilities render them invaluable for intermingling with other succulents in beds throughout the summer, and unrivalled in their admirable adaptability to enhance the general effect of the winter and spring flower-garden, whether introduced amongst other subjects, or in a few beds specially set apart for themselves. Many beautiful combinations can be secured, which form an additional interesting feature in gardens; and it is a source of enjoyment to note their many peculiar and highly-diversified structures, many having the appearance of small graceful shrubs, others of mysterious goblet-form, with brethren of strange dimensions as large and flat as a soup-plate. Others form beautiful stemless rosettes handsomely edged with a silk-like fringe; while others, again, tower up with stately growth from 1 to 4 feet, with unique-looking stems terminating in rosettes of elegant leaves. In fact, they are of all shapes and sizes. And where is there a genus of plants more capable of producing a striking and pretty effect in groups, or in giving a neater finish as an edging to a bed, than the common Houseleek, Sempervivum tectorum, which is a good type of the hardy section—one of their humblest members—and a universal favourite with the "old wives," with whom it seldom enjoys the luxury of a flower-pot, but takes good-naturedly to an old tea-pot, and is often moored away up in some bleak chink on the house-top, exposed to the extremes of all weathers, where nothing else could exist? The name of Æonium is sometimes applied as a distinction of the tender varieties, which require a greenhouse temperature in winter, and in the list appended are marked with an asterisk. All the others are quite hardy. For those who contemplate adding to their stock the following are very

Digitized by Google

characteristic: *Sempervivum tabulæforme and S. subtabulæforme present quite a host of interests in themselves, with little or no stem, but a wonderfully elegant, almost flat, finely-incurved visage, sometimes over 12 inches across, of a pleasing glossy-green colour, so compactly set together as to resemble a solid surface, and are very attractive objects when blending with *S. donkelaari, a grand variety of rather taller growth and interesting bronzy fine-formed leaves, neatly fringed. *S. arboreum variegatum is regarded as one of the finest, branching into numerous stems, each terminating in a beautifully variegated white-and-green rosette, giving it a very distinct and striking appearance when contrasting with *S. arboreum atropurpureum, which, when planted out fully exposed to the sun, turns to a very dark glossy colour, and is very valuable for centres of beds. *S. arboreum is also useful in this way, being a tall-growing green variety. *S. urbicum is exceedingly ornamental, with erect stem, bearing an immense head of rich shining bronzy leaves, which offer a nice contrast to *S. longifolia, with its cheerful light-green fleshy leaves of a velvety texture. *S. ciliatum, a good variety, with upright stem supporting a graceful bush of beautiful purplish leaves, is a good contrast to *S. velutinum, with erect stem and long slender pretty green foliage. *S. glutinosum is very useful for centres of beds; it has a ponderous head of beautiful glossy-green leaves, and many small shoots peeping through, which give it a highly-finished appearance, and is a grand contrast to *S. cuneatum, a noble variety with stately head of massive azure leaves. S. dorame has many irregular stems producing nice tufts of rosy-tinted leaves, and contrasts well with S. balsamiferum, with its highly ornamental stalks terminating in stout clusters of brown leaves. S. spathulifolium is very useful, with pretty green leaves. *S. Haworthii has numerous stems, with interesting small rosettes of a very deep glaucous colour at their apex. We must not omit S. canariense, a most worthy variety, with a corpulent cup-shaped structure of light green beautifully immersed in a fine hairy texture. Among the more miniature we have *S. cæspitosum, a little gem for edgings or carpets, with long slender leaves disposed in the form of a rosette, nicely variegated and deeply fringed, forming an admirable contrast to *S. barbatum, with much the same habit, of a very dark green colour. *S. azoideum, very small in leaf, like some of the Sedums, and prettily variegated. *S. tortuosum resembles in habit that of the preceding, with light-green foliage. *S. arboreum crispum, cheerful green, very suitable for edges. *S. greenovia aurea, an exceedingly handsome little plant, with a profusion of finely-formed deep glaucous leaves arranged in the form of a Pine cone. A good contrast to that is S. californicum, a well-known variety, with compact habit, and deep

Digitized by Google

green leaves beautifully tipped with carmine. S. Pittonii, very small, light green. S. soboliferum, very compact, deep green. S. cornutum, very dwarf, fine for carpeting. S. Braunii, very robust, dark green. S. Funkii, small green tufts, useful for groundwork. S. Powelii, very neat, brown. S. mettenianum, very fine, rosy purple. S. arenarium, very small, green. S. hirtum, very close in growth, with a beautiful chestnut-hue on the points of the leaves. S. montanum, very pretty for neat edges, of a rosy tint. S. fimbriatum, one of the neatest and most effective, with fine little glittering black pointed leaves, which is a chaste contrast with S. arachnoideum, a novel and highly ornamental little gem, very close in growth, producing a quantity of neat small rosettes, not over half an inch in diameter, of silvery whiteness, enveloped in a singularly elegant plume of silk cobwebs; it makes a lovely carpet, being quite hardy, and easily propagated by division. Most of the above-named small ones are principally adapted for edgings, where they can be nicely arranged, so as to present neat undulated margins.

For dense carpets of groundwork, for tall-growing succulents, many of the Sedums are exceedingly well adapted. Being very dwarf in growth, and of many different colours, they have a telling effect when reflecting from under the unique-looking plants. They always retain their cheerful lustres. When cultivated in garden soil, they attain a much richer and more vigorous growth than in their wild state, such as we see them when growing in obscure corners of rocks and old walls. From among this numerous group the following have a pretty effect:—Sedum dasyphyllum, one of the neatest, very dwarf in growth, with little fat leaves of a soft glaucous hue. S. acre forms dense carpets of pleasing green, and is a nice companion to S. acre aurea, which in early spring becomes beautifully golden. S. rupestre, long and trailing, useful for covering a large space with a brown tint. S. sempervivum, long running stems, thickly covered with small green lanceolate leaves. S. reflexum, very thick tufts, of purplish colour. S. soboliferum, small compact round heads, very dark. S. hybridum, greyish, very fine. S. Ibericum, very dwarf, with silvery foliage. S. ternatum, small deep bronzy rosettes. S. Jacquini, very distinct, hazy dark green. S. album, very neat, light green. S. glaucum, pleasant grey, forming close spreading tufts of short stems densely covered with little short leaves.

From the host of Saxifrages, many are admirably adapted to make pretty pieces of mosaic work in connection with succulents, where they form dense cushions of refreshing verdure of different shades. Though their free-blooming propensities are justly admired in embellishing the rock-garden with their profusion of delicate flowers, yet

Digitized by Google

in the succulent bed they should never be allowed to flower, as it produces a ragged appearance, which annihilates their graceful outline and much of their attractiveness. Those which form dense tangled masses when growing unrestrained in their native wilds, attain a gorgeous growth when isolated and carefully planted. Among those may be reckoned Saxifraga longifolia, a *ne plus ultra* gem with charming silvery rosettes, beautifully margined with dots of pure white. S. oppositifolia resembles some of the neat mesembryanthemums, in solid masses of purplish colour. S. oppositifolia major, same habit, rosy pink. S. cotyledon, one of the largest, with great silvery rosettes, nicely toothed. S. retusa, dense light-green tufts, with silvery edge. S. aizoon, very pretty silvery tufts. S. crustata, long slender greenish leaves, very useful. S. elatior, large glossy-green rosettes, vigorous in growth, and well adapted for edges. S. juniperina calls to mind one of our old landmarks in the close spreading Juniper bushes which cover the hill-sides near Maxwellton Braes with prostrate tufts of pleasing azure. S. aspera, exceedingly pretty grey masses, which are very ornamental. S. bryoides, small trailing shoots, thickly covered with tiny globular rosettes of bright green. S. cuneifolia, small glossy-green pyramidal rosettes, compact growth, very effective. S. Andrewsii, long slender green leaves, conspicuously dotted with white, and beautifully serrated. S. cæspitosa, very fine glistering green mossy cushions. S. gibraltarica, very close in habit, forming a dense mass of delicate green. S. affinis, very compact, roundish tufts of cheerful green. S. Holstii, numerous small frosted-like rosettes, neatly edged with white.

Sempervivums are easily propagated from seed, cuttings, and by division. Those of a close stemless habit, such as tabulæforme, are generally raised from seed, which is produced and ripened freely in the greenhouse, and from leaves. The tall shrubby kinds produce abundance of cuttings from their side-shoots, which should be carefully taken off and inserted into small thumb-pots, and placed in a cool dry frame, where they soon root, and succeed well under the same treatment as that given for young succulents in our last. The dwarf rosette ones, which are mostly hardy, are readily increased by taking off the numerous small offsets, which can be got in quantities with advantage to the parent plant. These do well when dibbled in rows or beds in any spare piece of ground. There is no difficulty whatever attending the increase of Sedums and Saxifragas, which can also be raised from seed, but with much less trouble by carefully dividing the patches. After a spring display it is sometimes necessary to remove them at the time of the summer's planting; they can then be divided with the view to increasing their number, and also to isolate

Digitized by Google

their matted masses. When planted in rows in any reserve ground, they form good plants to remove again to the beds when cleared of their summer's occupants. When their services are required in summer only, they can easily be taken up when clearing off other bedding-plants, and laid into any odd corner till required the following season. If left in the beds the whole year, then it is advantageous that they should be taken up in April or May, and separated before planting again.

The annexed list contains an equally varied and suitable selection :—

Sempervivum Americana.
" albidum.
" acuminatum.
" anomalum.
" arvense.
" assimile.
" barbatulum.
" *cuspidatum.
" calcareum.
" chrysanthus.
" *camphylactodon.
" *ciliare.
" dællianum.
" Delassiæi.
" flagelliforme.
" glaucum.
" globiferum.
" Heuffii.
" peterofrichum.
" pilosella.
" pyramidale.
" sulphureum.
" Verlottii.
" Wulfenii.

Sedum altissimum.
" Anglicum.
" annuum.
" brevifolium.
" corsicum.
" farinosum.
" Hispanicum.
" Lydium.
" luridum.
" multiceps.
" monregalense.
" Nevii.
" pulchellum.
" repens.
" stenopetalum.
" sexangulare.
" spurium.
" villosum.

Saxifraga atropurpurea.
" ajugæfolia.
" contraverse.
" cochleari.
" chondracea.
" decipiens.
" exarata.
" globifera.
" geminifera.
" Greenlandica.
" gracilis.
" Geum.
" hypnoides.
" incurvifolia.
" irrigua.
" muscoides.
" nervosa.
" pedatifida.
" Rocheliana..
" rupestris.
" reticulata.
" Sternbergii.
" tricuspidata.
" trifurcata.
" umbrosa.
" virginiensis.

(*To be continued.*) J. M.

COLEUS PRINCESS BEATRICE.—This, for small vases, for decorative purposes, we find to be the most beautiful of all the Coleuses. In the main its leaves have a fine golden colour, with the dark reticulations of its veins and stems, which are after that of Verschaffeltii. It requires, like most of the others, to be grown in the full influence of the sunlight to bring out its colour well; and to give it a stubby habit it requires to be kept near the glass in intermediate temperature, with plenty of air on all favourable occasions. We put in a fresh lot of cuttings of it every few weeks, so that we can always have some plants ready for use, should they be required. R. M.

Digitized by Google

NOTES ON AUTUMN AND WINTER FLOWERING PLANTS.

CAMELLIA.

THE Camellia is certainly one of the most useful and noble plants in cultivation. Even when not in bloom, who does not admire a well-grown collection? Their rich glossy foliage, when in health, gives them a character which few other plants possess. They require less artificial assistance than almost any other plant in their growth, and when there is much Christmas decoration, with the daily demand of drawing-room and dinner-table, not to say anything of those used for the hair, we consider them the mainstay at this season.

There are many different compounds recommended for their growth but we find that a good friable loamy turf, which has been cut about 2 inches thick—if fresh cut all the better—chopped up, or, what is better, teased with the hand into small pieces, leaving out the very fine, and adding a little charcoal and silver-sand, is a good mixture for them. The pots should be clean, with ample drainage, although they delight in plenty of water at certain stages of their growth: if the drainage get choked, it soon begins to tell on the appearance of the plant. When potted, place them in a house where they can be kept rather close and shady, with frequent syringing daily. If the soil is at shifting-time in a medium state of moisture, the syringings will keep them going until the root gets into active work, when water should be given whenever required, not in small quantities which merely wet the surface, but as much as will moisten the whole ball. With a temperature of 60° they will make rapid growth. As the sun gains power, a slight shading is beneficial to them. When a few are wanted early in autumn to bloom, get them started to make growth and set their buds as early as possible to get them thoroughly matured and rested; for this is the only time when they can be forced with safety, as they will not bear forcing without dropping their buds in winter, like many other things. After the buds are well formed, gradually withdraw the heat and moisture in the atmosphere, but still look carefully after the roots, when, if space is not to spare for them under glass, they will do out doors for a short time in autumn; but if possible we prefer to have them under glass. When a house can be devoted to them in which they can be planted out in prepared borders, they make grand plants with less trouble, and give immense quantities of flower. In the growing season, watering with soot-water adds to the richness of the foliage, besides acting as a manure at the same time. Large plants which are not shifted may have a little cow-dung laid over the surface of the soil in the pot.

Digitized by Google

POINSETTIA PULCHERRIMA.

This is really a splendid and very useful plant. When done blooming, the plants should be partially dried off. Then the old plants should be cut in to three or four eyes of the previous year's wood, allowing them to push the buds about an inch before repotting. In doing so, let as much of the old soil as possible be picked away without injury to the roots, giving them a good rich compost of loam and leaf-mould, with a little sand. After potting is finished, if a little bottom-heat can be given it will make them start into growth quicker, giving a top-heat of 65°, keeping them always close to the glass. Water should be given sparingly until the roots are actively at work, but they should be syringed several times a-day. To keep them clean and in a free-growing state, give plenty of water, with frequent syringings overhead. If large fine bracts are required for cutting, a few may be shifted on into larger pots as soon as the roots get to the sides of those they were first put into. If more plants are wanted, the prunings of the old plants may be made into cuttings which, in sand and leaf-mould, and placed in a gentle bottom-heat, soon root. By placing four or five round the side of a 6-inch pot, they make nice dwarf plants for decoration. It is astonishing how long they stand at the warm end of the conservatory after they are fairly expanded; and at this dull time they add greatly to the display of bloom.

Where there is plenty of accommodation and a great demand for winter bloom, it is desirable to have several distinct batches coming in at different times. They will thrive well in frames for about three months—where they can be placed after the bedding-plants are put out—attending well to them with water, and syringing every afternoon, about four o'clock, and closing the frame for the night. Fair dwarf plants can be grown in this way, and they amply repay all the attention bestowed upon them. A. H. T.

A VISIT TO WOODSIDE GARDENS.

Woodside, the residence of J. Baxendale, Esq., lies about seven miles from London, on the Great Northern Road. It is one of those snug, compact retreats, which the genius of commerce creates in the neighbourhoods of large cities, and where one of our merchant princes holds court. Woodside, as compared with our great baronial castles, with their miles of park, is a small place; but good taste, backed with plenty of means, has turned every bit of space to good account, and with such diversity of feature, that on walking through it one is led to think it far more extensive than it really is.

The mansion itself is—from an architectural point of view—an

Digitized by Google

unpretending structure, but comfortable and commodious. Standing near it, on the lawn, is a magnificent Cedar of Lebanon, and numerous fine specimens of Coniferæ are planted about the grounds, many measuring as much as 30 or 40 feet in height. Most of the best and rarest varieties are represented. A fine conservatory is attached to the mansion, in which I observed some fine Camellias, Palms, Tree-Ferns, a fine specimen of Araucaria Bidwillii, and many other things equally good and attractive; while it also was gay with Primulas, Chrysanthemums, Solanums, &c.

A charming feature in the grounds consists of two lakes, with islands, and innumerable waterfowl disporting themselves on the water. One of the lakes is on a level of about 15 feet above the other, and feeds the lower one by a cascade, and is again pumped back by hydraulic power, thus keeping the cascade constantly at work. The upper lake is fed in the first instance by a spring near at hand.

There is no walled-in kitchen-garden, but the vegetable quarters are extensive, and all the usual kinds of vegetables in abundance.

There are a few espalier-trained fruit-trees; but fruit is chiefly grown as standards. A large quarter is entirely filled with Pear-trees, which are in excellent health. The Apple-orchard is extensive; the trees are old, but still healthy, and produce abundantly.

The forcing-houses are numerous, and in good order, all the modern appliances for heating and ventilating being adopted. The first house we enter is a vinery, planted with Black Hamburgs and Muscats. The house is a three-quarter span, and about 25 feet in width. Bedding-plants are usually wintered in this house on stages; it is never fired, unless to keep out frost. A large, uncovered water-tank occupies about a fourth of the floor, from which cisterns throughout the other houses are fed. Yet under these adverse circumstances Muscats have set well and ripened admirably. Some fine bunches were still hanging at the time of my visit. They were not quite so well coloured as those grown under more favourable circumstances in another house, but in every other respect were first-rate.

The next house is a span-roofed Fernery, about 20 feet by 20, with brick ends, against which were some monster masses of Staghorn Fern. The roof is supported by six iron pillars, which are incrusted over with shells, bits of flint, &c., stuck in cement, and covered with Ficus repens, Passifloras, Bougainvillæas, and suchlike. Masses of rock-work, forming stands for large specimen Ferns, were dotted here and there over the floor, and round the walls. Pans of Pteris scaberula, Davallias, &c., measured 4 feet through. Baskets of Orchids, and other suitable plants, were suspended from the roof; and an enchanting degree of freshness and beauty pervaded the whole.

Digitized by Google

Passing onward, we next enter a vinery planted with late-keeping Grapes, comprising Lady Downe's Seedling, Alicant, Barbarossa, Madresfield Court, and Mrs Pince. The latter variety, not considered worth growing, is to be discarded. There was a splendid crop of well-finished Grapes in this house. The next house in the range is the Muscat-house. There is no inside border here. Mr Naylor has been renewing the Vines in this house, and, not to lose a crop, as the border lay low, he adopted the plan of forming a new border on the top of the old one, first ramming it down firmly, and spreading on a layer of concrete. There was sufficient space between the surface of the border and the wall-plate to admit of making the new one thus. The young Vines are making splendid canes, but the old ones are showing signs of suffering: however, they are to be cut out when the crop is gathered. The last house of this range is the early Hamburg-house. The Vines here have been forced early for 33 years, and still give satisfaction; a favourable example of the restrictive system of Vine-culture. Another vinery, which is forced second in order, is filled with one Vine, a Black Hamburg. There is also a Plum-house and three Peach-houses, with Camellias trained to the back walls. I never saw healthier Camellias anywhere. They were also well set with flower-buds. Peach-trees were also in fine health. Numerous specimens of hard-wooded greenhouse plants were being wintered in these houses. There are several houses filled with Cinerarias, Primulas, Cyclamens, Azaleas, Pelargoniums, &c. Lilium auratum and lancifolium are grown by the hundred.

There is a plant-stove, filled with the usual occupants; a Cucumber and Melon house; three Pine-pits, very awkward and unsuitable structures for the purpose, yet from which, nevertheless, good fruit is produced in abundance. There are several ranges of brick-pits for bedding-plants, winter Lettuces, and for growing early Potatoes.

The accommodation for the young men is of the first order, rooms well papered and carpeted. Books, periodicals, and newspapers are provided them gratuitously. The liberal-minded proprietor likewise encourages saving principles in the men, by granting them a minimum of 15s. per quarter, each man, on condition that he on his part puts the same amount into the savings-bank. The total amount is handed over to them when they leave; but, as a matter of course, changes are not very frequent. It is a pity that places of this description, where the temporal and moral welfare of the workmen is studied, are not more numerous than they unhappily are. Still, in this respect things are improving, and it is undoubtedly to the advantage of employers that they should so continue to improve.

We hope Mr Naylor may long be spared to retain a situation which he fills so worthily. J. G.

Digitized by Google

THE HOLM OAK (Quercus Ilex).

I OBSERVE in the 'Gardener' for January 1872 some remarks by your able correspondent, Mr Charles M'Donald of the Phœnix Park, Dublin, regarding the Evergreen Oak. For many years I experienced the same difficulty in transplanting that tree with success which he has had. As was long ago recommended by Loudon, nurserymen and others have generally raised the young plants *in pots*, from which they were transplanted into their permanent positions after they were two, three, or more years of age. The effect of this pernicious practice was, that the young plants, with their coiled and crumpled-up roots, seldom grew in a satisfactory manner; became mere bushes, stunted in habit; or if they did stretch upwards, the coiled roots did not sufficiently support them; and the result often was, that at a comparatively early age they were blown over with the wind. I think this may be a reason why this, one of the grandest of our evergreen trees, is so seldom to be met with fully developed in our parks and pleasure-grounds. My practice in rearing this tree for many years has been as follows :—

The acorns are planted in rich, dry, deeply-stirred soil, in drills or beds, during November or December, taking care that the nuts are placed 3 or 4 inches apart in the drills: during the first year the young plants attain a height of from 6 to 15 inches, and ripen well. I sometimes transplant after the seedlings are two years old, but I find that if they are allowed to remain till they are three or four, or even six or eight, years old, they transplant safely; by that time they will have become 3 to 7 feet in height, and if not standing too thick in the drill, they will have straight stems, with a moderate supply of short side-branches. The process of transplanting is done about the *latter end of May or in June, not earlier*, just as the young buds are beginning to start into growth; and the utmost care is then taken to make a deep trench quite close to the roots, so that the young plants may be taken up without the roots being strained or bruised. A plant four years old will be found to have its roots fully 3 feet into the ground. This carrot-like root should be carefully preserved, cutting only the very point away. This work may be safely done during dry hot weather, such as usually prevails at this season of the year. Every plant as taken up has the roots carefully protected from *light* and the *sun's rays* until planted; a moderate supply of water is necessary to settle the soil about the roots, but no moisture should be allowed nearer the surface than 6 inches. A layer of dry soil on the surface prevents the rapid evaporation of the water, and the consequent lowering of the temperature of the soil. Plants thus treated will grow at once; indeed, I have seen the small white rootlets produced within forty-eight hours after transplanting. I never calculate on losing more than three or four per hundred of trees thus transplanted.

Mr M'Donald seems doubtful whether this tree would thrive in the Phœnix Park. I have no doubt but under his care it would. The tree prefers a sandy or gravelly subsoil, but stiff soils deeply stirred and well drained suit it very well as far as I have seen. It abhors having its toes in a cold-water bath during four or six months of the year, like many other trees, but is not very particular as to soil. I shall be much gratified if these remarks should be the means of promoting more extensively the planting of the Evergreen Oak. It has many things to recommend it: it grows fast, affords excellent shelter, resists wind remarkably well, roots deeply into the ground, so that grass or low-growing trees thrive well under it; the timber is of excellent quality when full grown, and it is one of the few evergreen trees which thrive well within the influence of the sea-breeze.

EDINBURGH. PETER S. ROBERTSON, *Nurseryman.*

Digitized by Google

A FEW WORDS ABOUT LYCOPODS.

When a regular supply of plants is required for room-decoration, Lycopods are indispensable. They possess charms peculiarly their own, and their pleasing shades of green enhance the beauty of all plants with which they are associated. The gardener who has a well-grown collection to choose from for the purpose indicated, has at his command an acquisition that cannot fail to be of service to him, and impart pleasure to those whom it is his duty to please.

The culture of the majority of Lycopods is simple, and might be summed up as follows. A regular supply of moisture, shade from the direct rays of the sun, a still atmosphere, and good drainage. This is applicable to both greenhouse and stove species; neither will succeed well if exposed to scorching sunshine, a dry airy atmosphere, want of water, or bad drainage. The size that Lycopods can be grown to is limited only by the room at the disposal of the cultivator. Large pans of Lycopods are very beautiful, and for special purposes it is desirable to have a few such; but for general usefulness small plants are preferable. Their most important use is edgings to vases and baskets, and as carpeting to other plants used in the decoration of rooms; and for both purposes small plants are superior to large masses. It is best, therefore, to grow a number of the more useful varieties in small pots, say from 2 to 8 inches in diameter. The former will be found very useful, and the latter is large enough for most purposes. Those growers who have only a greenhouse, will find April a good month to repot them. Where there is a vinery, repotting can be done in March, as in most cases the Vines will then be receiving assistance from fire-heat; and the additional temperature and moisture of the vinery will assist the Lycopods to establish themselves with greater certainty of future well-doing. In repotting, use clean pots, both inside and out, and be careful to drain them properly, remembering that the plants will require daily supplies of water; and if the drainage is imperfect, the soil will soon get sour, and the plants cease to thrive. A few days previous to repotting, have the fresh soil taken into the structure where the plants are growing, so that it may get warmed, and be in fit condition to receive them.

All the greenhouse Lycopods will grow well in a mixture of fibry loam and leaf-mould, with sufficient silver-sand and pounded pot-sherds added to keep it porous. Let the loam be rather rough—the plants will do all the better for it being so. When ready to commence repotting, turn the plants out of their pots, and divide them into the requisite number of pieces, taking care in the case of the branching varieties, such as Selaginella stolonifera, to secure a piece of root with each division. Fill the pots with the compost described, and press it rather

Digitized by Google

firm, keeping it a little higher in the centre of the pot; then with a stick for the purpose make a hole in the centre, and insert a division of Lycopod, around which, towards the edge of the pot, insert as many pieces as may be thought necessary to form a symmetrical plant. When potted, place the plants in the least airy part of whatever structure they are to stand in, but in such a position as they will not be exposed to hot air from the hot-water pipes or flues. Give them a good watering through a fine rose, attend to the directions already given, and in due time you will be rewarded for your care.

For the benefit of those who may not be acquainted with Lycopods, I append the names of twelve that can be successfully grown in a greenhouse.

Selaginella apoda, moss-like habit, very beautiful.
" Martensi, close habit.
" flexuosa, small branching fronds, pretty.
" formosa, very close habit; a most useful variety.
" Willdenovi, handsome drooping fernlike fronds.
" cordifolia, grows about 6 inches high, very elegant.
" Schotti.

Selaginella denticulata, will grow almost anywhere, and for general usefulness and carpeting to other plants it has no rival.
" stolonifera, an easy grown useful sort.
" Burghalli.
" Cæsia.
" cuspidata, very pretty; forms a bird's nest, fronds branched.

J. H.

BRAYTON.

EARLY POTATOES.

LAST January, when some old Peach-trees were taken out of a house which was to be converted into a vinery, it was resolved, till the young Vines would be planted, that the best thing for us to do was to take out of it a crop of early Potatoes. This object was set agoing, and in the bed in the centre of the house, which was lower than usual, a bed of dung and leaves was made up to raise a gentle heat for the Potatoes, leaving a yard and a half or so in front, where the Vines were to be planted. When the bed was made up, about 6 inches of soil was put over it, and in the course of a few days it was quite ready for the Potatoes, for the heat was only very gentle. The Potatoes were soon put in, consisting of five kinds, which I thought would be quite sufficient for all purposes; and had I known what I know now, I would only have put in three. Those kinds of Potatoes were—Veitch's Early Ashleaf, which was the best and earliest of all; our next best kind was Myatt's Prolific, which had a very abundant crop; and then our third best was the American Early Rose. The latter kind did better than we expected—we only put in a few of it on trial. It is an early sort for size of tubers, but they

Digitized by Google

seem to me to take longer to ripen or mature, and produced very nice smooth-skinned and rosy tubers, but for an early Potato, although the tubers had size enough, being so tender skinned, they had a "watery"-looking appearance, so that we could hardly call them a first early. The other two kinds we grew were Mona's Pride and Morning Star.

The Potatoes were put in the last few days of January, and they made up a bed about 60 feet long by about 8 feet broad. They were planted about 2 inches deep, from 6 to 8 inches between the plants, and about 20 inches apart between the rows, for early Potatoes do not require such a great breadth as main croppers. And here I may say that our earliest (Veitch's) might have been planted a little closer, for it did not produce such a large haulm as some, or indeed any of the others. The soil used was a light "yellowish" loam of a sandy nature. We began getting new Potatoes from this bed about the first of May, although we could have had them earlier, but we did not want to begin them till we could succeed them from those that were planted at the bottoms of the walls out of doors. We got a good crop of them, and carried our object, for when they were done we had Potatoes from out of doors. And here I beg to say again that Veitch's was the best early.

ROBERT MACKELLAR.

MISCELLANEOUS NOTES TO AMATEURS.

ONE DOZEN OF FUCHSIAS, AND HOW TO GROW THEM.

OUT of the dark singles we select the following:—Killicrankie is a charm; its flowers are large, the sepals rich coral-red, broad, and well reflexed; corolla a lengthened bell of glossy-black satin of great substance, produced in great profusion, while the plant itself grows to a dwarfish pyramid. Perfection—as regards the flowers, perfection indeed; size moderate, sepals broad, deep red, reflexed like a turn-cap Lily; corolla expansive, even, and slightly turned inwards on the margin, and of glossy dark hue; habit rather weak, but withal a gem. Enoch Arden—tube and sepals waxy-red, broad, and neatly reflexed; corolla when opening indigo-blue, changing to violet, shaded red when fully expanded; habit pyramidal; fine for exhibition purposes.

Single Whites.—Lustre; a splendid addition to this class, remarkable for its brilliant crimson-vermilion corolla, along with its well-reflexed sepals; rather a strong grower, but compact; very commandable. Minnie Banks still keeps the van, and is well known without description. Arabella—as charming as it is useful; tube and sepals large, well reflexed; corolla rosy-pink, good substance: altogether a magnificent sort for all ends. White corollas and scarlet tubes and sepals.—Maid of Honour: this lady merits well her high position; I know of no other which has the charming look. With a little training it is made to assume an elegant pyramid, which it maintains; and nothing can exceed the beauty of its flowers, produced in constant profusion over three months of summer. Tube and sepals coral-red, of good substance, finely reflexed; the corolla very double, pure white, and of lovely mould.—Carry Symes: another finely-moulded double, but of weak growth compared to the preceding; flowers very large,

Digitized by Google

strikingly pretty, and double: fine for a small house.—Mrs Ballantine: tube and sepals rich scarlet, well reflexed, and of the first texture; corolla extra large, and broadly expanded; free habit: an exceedingly pretty sort. Another one which ought not to be out of the list, though it is one more than the dozen—Avalanche, which is possessed with more striking features than the most of its class; tube and sepals are a light carmine-rose, sepals short, broad, pointed, of strong substance, and neatly recurved; corolla unusually large, pure white, very double, moulded to perfection; blooms freely, and possessed with a vigorous growth.

Lastly, the doubles with scarlet tubes and sepals, and blue and purple corollas. —Champion of the World: it is almost impossible to exaggerate the wonderful development of this Fuchsia when grown strong; the foot-stalk of each blossom is fully 3 inches long, stout in girth, while the blossoms themselves are suspended nearly perpendicular by their own weight; and to see an upright growth loaded with these flowers is, in reality, a treat; the individual flowers resemble in outline perfect miniature bouquets; the sepals are beautifully scooped, and arranged in rings around a widely-expanded centre, against which the stamens lie exposed to view; colour clear; coral-red tube and sepals; corolla violet-blue, of immense expansion.—Avalanche (Henderson): wonderfully-fine habited for this sort, while the flowers are very large and double; tube and sepals rich carmine colour; corolla dark-plum, of solid texture; the foliage has the agreeable peculiarity of showing a pretty shade of yellow along with red veins.—Sir C. Campbell: one of the oldest and the best both for large specimens and small ones; should be in every collection. In treating of how to grow them, I shall be as brief as I can.

CUTTINGS.—These are rooted readily early in spring in thumb-pots, among silver-sand and leaf-mould, plunged into brisk bottom-heat. They ought to be well attended to with water at the roots; and if they are cuttings from the tops of the young growths, they will invariably soon strike roots. Pot off singly as soon as the pots they occupy are filled with roots—preferring a compost of rich fibry loam, mixed with about a third the amount of sand, leaf-mould, and old manure from the byre. Pass this compost through a ½-inch sieve, and pot rather firmly, while at the same time do not scrimp the drainage. Return the plants to the pit and plunge them, and keep a moist atmosphere about them, airing freely, and permitting full exposure to sunshine when out of danger of flagging after the shift. Supposing all have prospered, and the young plants are again requiring a fresh shift, as indicated by their roots, furnish the same soil as advised for the last potting, with this difference—viz., do not sift the loam, but only break it moderately with the hands, so that it may form a more open body when incorporated with the other ingredients. Use pots two sizes larger on every occasion of shifting, overlaying the crocks with the most turfy parts of the mould. Avoid over-slack and over-firm potting, and encourage rapid growth, should large specimens be the aim; but beware of drawing the plants into long weak growths by an insufficiency of ventilation. When the plants have attained to the desired dimensions, they may then be removed from the heat to a cool house, where they have the advantage of an airy, sunny aspect all the day. No more pinching should be performed on them than is really required to balance and form the plants. Use the syringe freely over the plants at all stages after the sun's rays are off them in the afternoon, more especially when the season is dry and sunny. Watch the first indication of flower-formation, which will be found on the points of the growths; then let them have weak liquid-manure daily, when watering is necessary at all—1 lb. of guano to 30

Digitized by Google

gallons of soft water, with a half-peck of cow or sheep droppings properly dissolved in the water, and of course seeing that the water is free of sediment when given to the plants.

HARDY POLYANTHUS.—Nothing can surpass the beauty and usefulness of these for early spring decoration. Their airy and really pretty umbels of flowers give a charm to a greenhouse, independent of the peculiar agreeable fragrance they constantly emit. Moreover, when well grown, the lengthened period over which they afford flowers makes them doubly valuable. Their wants are simple, few, and inexpensive, which is another consideration.

Culture from Seed.—Early in February sow the seed in properly-drained pans, amongst a mixture of light loam and leaf-soil; cover lightly, and sprinkle the surface through a fine rose, and put them into a frame where there is a little bottom-heat. This will assist germination more rapidly than if in a cold frame. Keep the surface moderately damp, by renewed sprinklings, until signs of vegetation are indicated; and guard against slugs nipping over the seedlings as they appear above ground. Shade from bright sunshine at first, and gradually move them to full exposure; ventilation ought constantly to be given freely in the daytime, weather allowing—that means in the absence of stormy, rainy, or frosty weather.

When the plants are furnished with their first pair of rough leaves, prick them into boxes in lines 2 inches apart, supplying the same soil as recommended for the seed-bed; water and shade until all danger is past from exposure before they take a fresh hold of the soil. And when the plants have filled their allotted spaces, they should at once be potted into pots of 6 inches diameter; return them after potting to the frame; water copiously at the time, and keep them rather close for a few days, after which any amount of ventilation may be given them, and finally the sashes removed altogether.

As soon as the plants are established in their pots (which, we shall presume to say, is the commencement of May), put them in a frame shaded in the height of the day. Indeed, the less they are exposed to summer sunshine the better, as also to cold currents. This, with water when required, is all they require until the following September, when they may again be restored to frames, open to the sun all the winter, and only affording the protection of a mat when frost sets in. A. KERR.

CROTONS.—I had a number of young Crotons, with, in some cases, fine variegation for "table-work" during the coming winter. They were beside some other stove-plants that we began to feed a little with manure-water; through something like chance the Crotons came in for a share of the same treatment; and I am sorry to say, when it is too late, that they have been somewhat injured by the stimulant, for some of the young leaves have become too green to serve well their purpose. The influence of certain kinds of natural waters may be said to be marvellous, upon "foliaged" plants especially, but with us we have found that manure-water won't do for Crotons. When I mention the effects of various natural waters upon plants, is it from that cause or source that so very fine examples of Crotons are, I believe, usually to be seen exhibited at the Manchester Horticultural Exhibitions? The year before last (Show, May 1870) I saw there with great pleasure a C. angustifolium—a large plant, which reminded me of a beautiful golden fountain. R. M.

[We think light has most to do with the colouring of Crotons, though waters may have a share.—ED.]

Digitized by Google

PYRUS MALUS FLORIBUNDA.

No apology is, I think, necessary for introducing this really beautiful shrub to the readers of the 'Gardener.' We have had it in a flowering state for some years past, and can therefore speak of its merits with the greatest confidence. No pleasure-ground, however limited, should be without a plant. I would refer those requiring a minute account of the quality of the flower to the November number of the 'Florist and Pomologist.' The usual time of flowering is during the latter part of April or beginning of May, but on this point locality and situation have a considerable influence. The habit is vigorous, the young branches slender and slightly drooping. Our plants are growing in a heavy calcareous loam, but I daresay other kinds of soil will do as well. My principal object is to give expression to an idea which has been floating across my mind for some time past—namely, an endeavour to show off the beauty of this plant to more advantage. The way by which I should do this is to secure as a stock the common Crab-Apple, from 8 to 10 feet high, furnished from the bottom to the top with side-shoots, and graft close to the stem. Or should it be difficult to secure them of so large a size, young pyramid Apple-trees can easily be had from the nursery at a trifling cost. There can be no doubt that in the course of a few years this Pyrus so treated would be an object of great interest. Grafted on stocks about 3 feet high, it may be used as a decorative plant in spring for the conservatory, and would mix well among Rhododendrons, Azaleas, and a host of other things. ALEXANDER CRAMB.

SORTWORTH.

PRIMULA JAPONICA.

THINKING that it will interest your readers to learn something of the habit and growth of this magnificent Primula, we beg leave to forward you a few extracts from letters received from Mr Krame, of Yokohama, Japan, who has at various times forwarded to us seeds and plants of the species. He writes as follows: "If the drawing in the 'Gardeners' Chronicle' is a true one, Primula Japonica must be very much finer at home than it ever is seen here; a cold climate and good cultivation have no doubt great influence, for its native country is said to be the island of Yeza. It is generally found growing on the banks of streams and watercourses in yellow loam. I have seen it growing from 2½ to 3 feet high with 6 or 7 tiers of flowers, a magnificent sight.

"In sowing the seed it is very important to know that, as this Primula is not a native of a warm country, it requires no artificial heat for germinating, and that frequently the seed does not germinate until the next spring; in fact, the latter is the rule. I would therefore advise the seed should be sown immediately, and left for at least six months undisturbed (June 1870). I have now some boxes which have stood for two years, and this year there are more plants coming up than even the first year (May 1871)." From this it appears that the seed takes a long time to germinate, that a cool moist yellow loam is best suited to the plant, and that it is likely to improve much under cultivation. It will also prove especially valuable, on account of its tendency to vary, for hybridisation.

I trust these few remarks may prove acceptable to those who may contemplate rearing this beautiful Primula. T.

COLCHESTER, *January* 17, 1872.

Digitized by Google

POINSETTIA PULCHERRIMA CULTURE.

Probably there is not a plant in cultivation more ornamental during the dreary winter months than this Poinsettia. There is something peculiarly attractive in the graceful outline of the blood-crimson florets, and its singularly distinct appearance, which renders it well adapted for all sorts of decoration. It offers contrast with the most glaring colours, and is always a welcome guest on the dinner-table, where by gaslight its bright colour becomes still more vivid. It suits alike the greenhouse or conservatory, where it never looks more charming than when blending its graceful head above the Chinese Primula, or with its exquisite tuft of bracts resting and reflecting against the spotlessly pure-white Camellias. Yet this universally acknowledged beauty is not one of those pampered pets generally killed with kindness. As a general rule, they are not well cultivated; the almost uniform barbarous practice of drying and cutting to which they are subjected has a tendency to enervate the plant, and lead to imperfect development. Many who are most scrupulous as to the cutting and bleeding of what may be termed common weeds, will unhesitatingly maltreat this gem by cutting and bleeding it to the utmost. As our mode of treatment differs somewhat from that generally recommended, a few hints thereon may be admissible.

To begin with the plants. When they are at rest, which will generally be in the spring months—from February to the end of April—instead of cutting them down then, they are started into growth, and soon send out many young shoots. When 2 inches long, the most vigorous are taken off, with a little of the old wood attached, or what is generally termed a heel, and immediately inserted in the pot, avoiding by all means the drying process as one of the greatest injuries, from which they seldom ever recover again. A single cutting is put into the smallest-sized pot, filled with equal parts of leaf-mould and silver-sand, and placed in a bottom-heat of 75° to 80°. Every cutting is sufficiently rooted in a fortnight to shift into thumbs, when they are again placed in a gentle heat and gradually hardened off, till they are repotted into sixtys, using a compost of fibry loam, silver-sand, and well-decomposed cow-dung, and placed in a cold frame, in a light airy place, near the glass. They are never allowed to suffer for want of water, with an occasional watering of liquid manure, which greatly aids in promoting a robust growth, so essential to the production of fine specimens. They are thus treated till the end of September, when they get their final shift into 4 or 5 inch pots, using the same mixture, and kept rather close in a temperature of 60°, when the flower and floral leaves soon appear. They are then plunged in a

Digitized by Google

brisk bottom-heat of 90°, when the bracts push out with amazing rapidity, so free from that stunty one-sided unevenness which often attends a long development. When the bracts are fully expanded, they are again removed into a lower temperature to stiffen the heads, after which they may be introduced with grand effect into the stove, greenhouse, or conservatory. By this treatment fine dwarf plants, from 10 to 15 inches high, with glorious flower-heads the same in diameter, are obtained without ever losing a single leaf. We do not aspire to plants of enormous dimensions; often there is little to be gained by such. Requirements being the first consideration, 4 and 5 inch pots are more useful in connection with house and table decoration.

Where large plants are required for the decorating of staircases, halls, &c., as mentioned by the "Squire's Gardener" in the December number, we prefer placing from three to five plants in one pot, after they are rooted in the small ones, shifting and growing them on to the regular sizes. By this means they can be had of such varying proportions as to suit the most spacious as well as the most unpretentious of situations, and will invariably give good returns during the winter months, when anything in the shape of a flower is doubly charming. EUPHORBIACEÆ.

VALLOTTA PURPUREA.—One of the most effective of the pot plants at the Derby Flower-Show on the 20th of September last was a fine pot of this popular Lily. I forget the number of spikes it had, but nevertheless it was an example that was much admired by many of the visitors, and it is certainly a pity that fine examples of the same type are not oftener met with for conservatory decoration in autumn. It has a much better appearance when a pot of fine bulbs are in flower together, than when they are only singly in small pots. The same may be said of the Eucharis amazonica. It has a much better show when a good large pot of it is seen, with say about a dozen spikes of flower. The Vallotta purpurea is much used, and to great advantage, as a window plant in the vicinity of Chesterfield. Lately, when that way, I saw several fair specimens of it in bloom, and they looked as well as if they had been in a conservatory.

CONIFERÆ.—A short time ago the idea struck me how desirable a thing it would be if we could get a cross or hybrid between the Silver Fir and Picea pinsapo. It is well known that the Silver Fir grows to a gigantic size, but in proportion it has not, in any ordinary comparison with its size and height, the dense, feathery, and beautiful appearance of the Picea pinsapo. If a plant could be obtained to rise to the height of the Silver Fir, with the appearance otherwise of the pinsapo, would it not be a great gain to our gardens, and especially in collections of Coniferæ? The difficulty would be to effect the cross, but seeing the amenity of the parents, and the various good qualities of each (both being Piceas), do you not think that it would be well worth while spending a few anxious hours over the matter, when the time of their flowering comes again? R. M.

Digitized by Google

PLANTS SUITABLE FOR TABLE DECORATION.

JUSTICIA FORMOSA AND JUSTICIA GHIESBRIEGHTII.

THESE plants are most useful for the dinner-table, and will well repay whatever care may be bestowed on them during the past summer; and as they come into flower in the dull months of November and December, they are very acceptable. They can be grown to very large and handsome plants in one year, and will remain a long time in flower, therefore no stove should be without them. It is not my intention at present to give any remarks respecting the culture of large plants, but simply to say how useful they are when grown in a small state. Here they are great favourites, especially with the ladies. My own practice is as follows: about the middle of March I take off a few young cuttings, and insert them in a pot of soil of equal parts loam, peat, and silver-sand; only one joint is put in the soil, as then they are not so likely to send up suckers. The pot is then plunged in a dung-frame, amongst Verbenas and such things. After about a fortnight they are removed to an airy part of the stove, short joints being more the object than fast growth. In about a fortnight they are in good condition for potting singly. I always run a knife round about them, an inch away from the young plant, so as to bring each out with a ball. They are then put into 3-inch pots, using a mixture of peat, loam, dung, and sand, in equal parts. As soon as they have started to grow, I pinch out the head to make them break. They will most likely want pinching again, in order to get a bushy plant; about six shoots is what I aim at. A stake is put to each shoot, to conduct and keep them a nice distance from each other, the tallest being in the centre. As soon as the pots are full of roots, they are shifted to 4½-inch pots, and occasionally watered with weak liquid manure. Before putting the plants on the table, I remove the stakes, as the plants look best without them. The Ghiesbrieghtii should have as much sun as possible, as the riper the wood the better will be the flower. WM. NOKES.

CUCUMBER BLUE GOWN.—Various opinions have been given concerning this new variety of Cucumber. I have grown, besides it, this year, several other varieties, Master's Prolific, Telegraph, and Long Gun, and it has proved itself to be the best of any of these. I do not know whether it had been something like a chance hit that gave us such a good one, as sometimes it happens that a superior variety turns out of an inferior strain, but such was the case with us. We had several large and finely-shaped fruit of it about 2 feet long, that were noticed very favourably by various gardeners who saw them. The fruit were not so numerously produced as was the case on some of the other plants, but we cannot look for large and fine fruit in the same quantity as when we have them only ordinary-sized. R. M.

[A grand Cucumber in all respects.—ED.]

Digitized by Google

WIRING WALLS, &c.

ALLOW me to give the true story of this subject. When this "wiring of walls" first appeared in the 'Gardener's Magazine,' a gentleman called my particular attention to it, and stated that he would have his Peach-wall "wired." I answered, "Very well, do as you please; I will not do so."

Now this gentleman was very fond of his garden, and his gardener (whose name was Gorrie) studied in all the *ologies* and *isms* of that day; but he failed, or appeared to me to fail, in an accurate knowledge of "radiation of heat." His inquisitiveness prompted him to ask my reason: knowing that he was a "great man" amongst the philosophical scribes, and also a companion of the justly celebrated "Knight," then President of the Horticultural Society of London, I merely stated that as the altitude of his wall was about the same as that of mine, and on the north of the parallel of London, the wood of the Peach would not ripen well, and that the fruit, if any, would be *late*—not at all desirable with him or with me. However, he wired his Peach-wall: the wood did not ripen well; the few fruits that set never did ripen to anything like what they did before the wire was applied to the wall. Mr Gorrie left the place; another clever gardener filled his situation. But there were two items which were too much for his ability to manage—*i.e.*, to make the Peach-trees ripen their fruit, and his master to acknowledge that his wires stood in the way, and prevented the fruit from ripening.

Nevertheless, this gardener stopped at the place till the wires rotted and fell off the nails, and the Peaches ripened their fruit as usual. So much for the success or failure of the application of wires to walls by a scientific gentleman, who would not be guided by the superior knowledge of a gardener. Therefore let all gardeners in cold and exposed situations keep wires from their walls. I have seen the wires adopted in warm situations where they answered admirably; yet the fruit was later in ripening than it was before the wire was applied to the wall, which is a great advantage when the family return home late in the autumn from its summer excursions; and when the family goes off and returns at various times during the year, part of the walls being wired and part of them without wires may be found more serviceable than either the one or the other entire. No one doubts its superiority in other respects. The late Sir Henry Steuart, Bart., in his 'Planter's Guide,' ridicules gentlemen for being guided by their "rule-of-thumb" gardeners; it will be perceived by those "rule-of-thumb" gardeners that, both in the above case and in the following case, this scientific gentleman fell "into the ditch," against the will of both his own gardener and myself.

YE KEN WHA.

Result of Examination of Gardeners, on December 12, 1871.

	Fruit and Vegetable Culture.		Floriculture.	
	Marks.	Certi.	Marks.	Certi.
1. C. Adams, Retford.	390	3d.	390	3d.
2. William Falconer, Royal Gardens, Kew.	910	1st.	1080	1st.
4. John Jones, Royal Gardens, Kew.	1140	1st.	1100	1st.
5. James A. Smith, Royal Gardens, Kew.	930	1st.	740	2d.
6. Charles Herbert, R. H. S., Chiswick.	730	2d.	460	3d.
7. A. W. Maynard, R. H. S., Chiswick.	660	2d.	700	2d.

N.B.—The Examiner in Floriculture reports that Nos. 2 and 4 have given very intelligent replies to the questions.

JAMES RICHARDS.

Digitized by Google

HORTICULTURAL EXHIBITIONS.

Royal Horticultural Society, January 17.—The opening meeting of the year is generally looked upon more in the light of a pleasant *reunion* than as an exhibition; but in the Council-room at South Kensington yesterday were brought together what formed in reality a charming little show for the season, affording, too, a pleasing augury of the success that may be expected in spring, summer, and autumn, when Flora and Pomona bring their gifts more plentifully.

The first class in the schedule was for nine Ivies in pots. Messrs Lane & Son, Great Berkhampstead, took the first place with well-clothed pyramids trained on wire, ranging from 3 to 4½ feet high. Among the varieties were Caenwoodiana, with small narrow-lobed leaves; Gold-blotched; Maculata; Digitata; Rægneriana; Argentea rubra, with small leaves edged with white and rose; and Canariensis maculata, with small leaves mottled with cream colour. Mr Turner, of Slough, was second with smaller plants.

The best collection of nine hardy Conifers was exhibited by Messrs Standish & Co., of Ascot, who had a first prize for excellent specimens of Cephalotaxus Fortunei robusta, a fine vigorous plant; Cupressus Lawsoniana fragrans and Taxus fastigiata aurea, exhibited at the previous meeting; Thujopsis dolabrata; Retinospora obtusa pendula, very handsome; R. filifera, of an extremely graceful drooping habit; R. lycopodioides, one of the most handsome of the Japanese Conifers; and Juniperus japonica albo-variegata, strikingly splashed with white or cream colour. The second prize went to Messrs Veitch, and Messrs Lane had an extra prize.

Prizes were offered for the best three dishes of kitchen Apples, also for the best three dishes of dessert Pears. For Apples, Mr Parsons, gardener to R. Attenborough, Esq., Acton Green, was first with excellent fruit of Blenheim Pippin, Golden Noble, and Dumelow's Seedling. Mr Miles, Gardener to Lord Carrington, Wycombe Abbey, was second with Dumelow's Seedling, Alfriston, and Prince of Wales. Mr Frisby, Blankney Hall; Mr Ross, Welford Park, Newbury; and Mr Parsons, Danesbury, also competed. For Pears Mr Miles was first with Uvedale's St Germain and Catillac, fine, and Vicar of Winkfield. Mr Parsons, Danesbury, was the only other exhibitor in this class.

Fruit Committee.—G. F. Wilson, Esq., in the chair. This being the first meeting of the year, the question of certificates was brought under consideration. There have hitherto been two certificates granted by this Committee, the first-class certificate being awarded to novelties or improvements in races of fruits and vegetables, and the special certificate for meritorious cultivation of existing kinds. It has been found, however, that a use has been made of the special certificates which was intended only for that of the first-class certificates, and to remedy any disadvantages arising from such a practice, it was decided that in future there shall be but one certificate issued, and that to be a first-class certificate for new kinds or improved races of fruits and vegetables, and that for meritorious culture a *cultural commendation* shall in future be issued, and the special certificate abolished.

Messrs Stuart & Mein, of Kelso, sent specimens of a very good variety of Scotch Kale, very finely curled. Mr Taylor, gardener to W. R. H. Powell, Esq., Maesgwynne, Whitland, South Wales, sent some specimens of a good variety of Six-weeks Turnip. Mr Bray, gardener to W. A. Sanford, Esq., Nynehead Court, Wellington, Somerset, sent a very splendid bundle of Asparagus, which was of so great merit as to obtain the first cultural commendation. Mr Cryer, the Gardens, Sneyd Park, Bristol, sent specimens of a seedling Onion, said to

Digitized by Google

be a cross between Nuneham Park and Blood Red, but which was considered to be the same as Brown Globe.

Mr Piccirello, Wigmore Street, exhibited a very interesting collection of foreign fruits and roots, the most attractive portion of which was the wonderful specimens of Garlic, which for size and colour are rarely seen. There were also in the collection Onions such as have been exhibited at former meetings and have been noticed in our reports, Melons, Oranges, Lemons, preserved Chestnuts and Figs. A letter of thanks was awarded for this collection. Mr Wilson, gardener to Earl Fortescue, Castle Hill, South Molton, sent two remarkably handsome and large specimens of Charlotte Rothschild Pines, weighing 13¾ lb., from plants seventeen months old. They were awarded a cultural commendation. Mr Batters, the Gardens, Chilworth Manor, sent a box of Muscat of Alexandria Grapes, but they were too far gone; also two bunches of Black Alicante. Mr Clarke, gardener to W. Vivian, Esq., Roehampton Lodge, sent a dish of Glou Morçeau Pears, which had been well kept, but were deficient in flavour. Mr Dancer, of Chiswick, sent a dish of Beurré d'Aremberg, excellent in quality and in flavour. A seedling Apple, called Beechwood Foundling, came from Mr J. Freeman, gardener to Sir John Sebright, Bart, Beechwood, but it was not considered superior to varieties already in existence. Another seedling from Mr Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was considered good, but not of sufficient merit to justify its being cultivated as a new variety. Messrs Harrison & Son, of Leicester, sent a seedling Apple, small and round, of a greenish-yellow colour, called Lady Berners, which was not approved; and another called Prince of Wales, of good size and striped, but it too was not of sufficient merit.

Messrs James Backhouse & Son, of York, sent two dishes of the Galloway Pippin which received a first-class certificate last year, and the variety maintained the same high character which was formed of it when the certificate was awarded. Mr William Paul, of Waltham Cross, exhibited a collection of six varieties of Apples.

Floral Committee.—W. Marshall, Esq., in the chair. Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, sent a fine collection of Orchids, including Lycaste Skinneri. Oncidium aurosum, with a branching spike of numerous rich yellow and reddish-brown flowers, O. nebulosum, Ada aurantiaca, Sophronites grandiflora, with very large flowers, Lælia autumnalis, Odontoglossum cristatum, Zygopetalum Mackayi, fine; the white-flowered Saccolabium Harrisoni, Lycaste lanipes, Lælia anceps, and L. autumnalis grandiflora. A cultural commendation was awarded for Phalænopsis Porteana, with two fine spikes of lovely white flowers, with a rosy-purple lip tinged with orange at the base, and dotted with crimson. This was very handsome. A first-class certificate was also given to Mr Denning for Odontoglossum Denisonæ, of the same race as O. Alexandræ, of which it appears to be a large-flowered variety; some of the flowers of this had seven sepals and petals, the others only five; hence there seems to be a tendency towards producing semi-double, or, it may be, double flowers. The spike of this handsome plant had eighteen flowers.

Mr Williams, of Holloway, sent a group of his new yellow-berried Aucuba, called Luteo carpa. The plants were heavily loaded with berries, which are ornamental as affording a contrast to the red-fruited kinds. A certificate was awarded to the variety at a previous meeting. Cattleya Walkeriana, in fine bloom and colour, had a commendation. Oncidium cheirophorum, with a branching spike of canary-coloured flowers about 9 inches in length, and Odontoglossum gloriosum majus, were also shown by Mr Williams.

Messrs Standish & Co., of Ascot, exhibited a collection of plants, such as Geraniums, Cinerarias, Bouvardia jasminoides, Cyclamens, Lily of the Valley, and

Digitized by Google

Poinsettia pulcherrima. Mr Wiggins, gardener to W. Beck, Esq., Isleworth, received a commendation for a well-bloomed collection of Cyclamens. Mr Clarke, market-gardener, Twickenham, exhibited a numerous and excellent collection of the same flower, as did Messrs Veitch. Messrs E. G. Henderson likewise sent a small collection of selected varieties. Mr Wiggins also sent half-a-dozen plants of kinds with the foliage more ornamentally marked than is usually seen.

From Mr Turner, Slough, came fine baskets of Tricolor Pelargoniums, for which a commendation was given. Mrs Headley, Achievement, and Reynolds Hole were remarkable for their splendid colouring. Mr Turner likewise exhibited a dozen berried Aucubas of different varieties, grown as standards of from 2 to 3½ high, with great masses of bright red berries. From Mr George, gardener to Miss Nicholson, Putney Heath, came a box of cut flowers, including Camellias, Cypripediums, Dielytra, &c. Messrs Dobson & Sons, Isleworth, sent a collection of white-flowered Chinese Primulas in good bloom. Messrs E. G. Henderson, St John's Wood, likewise exhibited a number of seedlings with double flowers. Of these the following had first-class certificates:—Princess of Wales, very double, white; Exquisite, delicate Peach; Magenta King, magenta rose; and Emperor, one of the Fern-leaved class, with fine, very double, lilac flower.

Messrs Veitch sent a grand collection of white and red Chinese Primulas, as well as the white-flowered Fern-leaved variety; also forced Persian and Charles X. Lilacs, and a box of Lily of the Valley in fine bloom, Hippeastrum pardinum, Rhododendron Princess-Royal, a fine specimen of Cœlogyne cristata, Barkeria Skinneri, Cypripedium Harrisianum with one very fine bloom, Odontoglossums, fine specimens of Lycaste Skinneri superba, Saccolabium giganteum. Messrs Veitch likewise exhibited Oncidium cheirophorum from Chiriqui, already noticed, and a Dendrobium with white sepals and petals and a purple lip.

Mr Bull sent Dracæna concinna, a plant of graceful habit, with the old leaves of a dark olive, the young shaded yellow and purplish crimson; Crinum amabile, a very showy plant, silvery rose streaked with lilac, and brilliant purplish crimson externally; Macrozamia corallipes and plumosa, and Dæmonorops palembanicus,—the last a very handsome Palm; Cypripedium pardinum, with the slipper much veined with green; and an Odontoglossum.

Mr Lee, Arundel, Sussex, again sent his Tree Carnation, Mare. From Mr Edgerton, gardener to the Countess of Waldegrave, Strawberry Hill, Twickenham, came Cyclamen persicum splendidum, with foliage of immense size; one of the four plants had white flowers, the others were not in blossom. Some plants of the Roman Hyacinth were exhibited in excellent bloom, but the name of the sender was not stated.

Messrs Backhouse, of York, had a commendation for Lælia autumnalis grandiflora, on a block, with eleven large blooms, lovely in colour. From the Society's garden came a nice panful of Ada aurantiaca; and from Mr Douglas, gardener to F. Whitburn, Esq., Loxford Hall, Ilford, an Odontoglossum, said to be new, but not so ornamental as many others of the genus.

Commendations were awarded to Messrs Veitch for their collection of Orchids, also for their Lilacs, Primulas, and Cyclamens; to Mr Turner for his Aucubas, also for Tricolor Pelargoniums; to Mr Clarke and Mr Wiggins for Cyclamens; to Mr Denning for his collection of Orchids, likewise for Phalænopsis Porteana; and to Messrs Standish for their group of plants.

The Victoria electric thermometer, an ingenious instrument for indicating and giving notice of changes of temperature in plant-houses, was also exhibited. This is the invention of Mr Rothnie, and has been brought into public notice by Mr Williams, of Holloway.—*Journal of Horticulture.*

Digitized by Google

MEAN TEMPERATURE FOR THE LAST THREE MONTHS OF 1871—NORTHUMBERLAND.

MEAN temperature for October—min. 37°.3, max. 54°.4. On the 10th the min. thermometer indicated 24°, which was the lowest; highest 62° on the 15th; rainfall 2.86. Days of fall, 17.

Mean temperature for November—min. 29°.3, max. 41°.8. From the 2d to the end of the month the highest reading of the min. thermometer was 35°. Frost was registered on twenty nights. The lowest temperature was 18° on the 19th; highest max. 49° on the 2d; rainfall 2.04. On twenty days either rain, sleet, or snow fell.

Mean temperature for December—min. 29°.5, max. 40°.7. Frost was recorded on twenty-three nights. The lowest min. temperature was 15° on the 5th; the highest max. 48° on the 18th and 30th; rainfall 1.82. On seventeen days either rain, sleet, or snow fell.

In the pages of the 'Gardener' for January, two writers, in the course of their remarks, give a list of the best varieties of Geraniums suited for bedding. There is one bedded out in this neighbourhood which is not mentioned, named Madame Rudersdorff. It is one of the best in this locality. The habit is good; the flowers are on strong foot-stalks, and well thrown above the foliage; and the colour of the flowers is carmine-salmon, white margin.

J. FINLAY.

BEGONIA BOLIVIENSIS.—This is one of the prettiest and most interesting of our stove flowering-plants at the present time. It does not flower just so profusely as many of the Begonias—Weltoniensis, for instance; but it makes up for that deficiency in the extra-pleasing character of its individual blooms. These are of a delicate red colour, male and female usually coming in pairs (one male and one female) on one flower-stalk. The flowers are larger, and the petals more tapering to a point, than any Begonia I can remember of. The males, which develop first, have four petals, while the females have from five to six. Sometimes the female flowers are solitary, and then they are larger than when with the males; and they are of a deeper shade of colour. The flowers close at night, but they are not then without their interest, for the two calyx petals, which are the main ones of the flower, when they are compressed look somewhat like so many red cranesbills upon the plant. I believe this Begonia would suit very well for most decorative purposes where effective plants are in demand.

SUPPER AND PRESENTATION.—The firm of Messrs Downie, Laird, & Laing are well known for the many marks of kindness and respect with which they are accustomed to treat their employés. Their last act of this nature was performed on the evening of the 15th inst., when the firm gave a supper and presentation of a handsome silver lever watch and chain to their much-respected salesman, Mr M'Keith, on the occasion of his being twenty-one years in their service that day.

Digitized by Google

Calendar.

KITCHEN-GARDEN.

THE more important crops (to be sown soon) in the vegetable-garden should be arranged systematically, keeping each kind by itself as much as possible, choosing the most suitable soil (if it should vary) for the occupants to be grown in it—deep strong soil for Onions, sandy loam for Carrots, rich stuff for Leeks. Cauliflower does well in rich soil, but often suffers severely from grubs, and many growers depend more on soakings of manure-water while growth is going on than heavy manuring. There are few places where everything is at command for successful cropping, but where there is proper arrangement early in the season, the after-management is made comparatively simple. Ground where there are remains of crops, such as Broccoli, Brussels Sprouts, Kale, &c., may be cleared, and what plants are still of use may be lifted with roots entire and placed in any space closely together, where they can remain till used up. Every space thus cleared may be trenched or dug up for crop. In gardens small in proportion to the demand, much can be done by timely clearing and keeping the ground always fully occupied: ridges which have been well exposed to the weather may be broken down when frozen, and moved about to get the surface as kindly as possible; and if dry and otherwise favourable weather should set in about the end of the month, the main crop of Onions may be sown. Drills drawn from 8 inches to 1 foot apart (according to richness of soil) are preferable to the old system of making beds, and take up less time. It is not well to sow the seed very thickly, as the seedlings come up in tufts and weaken each other, and are difficult to thin. When the seed is covered (which should be very lightly), the whole surface may be thoroughly trodden and left smooth. Much treading on clay land is injurious, and no treading should be practised where any ground is wet. Covering the seed with dry soil from under cover is of great advantage when land is cold and heavy. A small breadth of Carrots may be sown on a warm sheltered border. The seed should be dusted over with soot or wood-ashes, and covered in with light sandy soil—if prepared for the purpose, so much the better. We find a sloping ridge thrown up to the sun an excellent position for early Carrots, Radishes, Cauliflowers, Lettuce, Turnips, &c. A covering of thatched hurdles, hoops and mats, or evergreens, will keep out frost; and when weather is fine, all covering should be taken off: early-forced vegetables in frames cannot have too much light and air. Cauliflowers may be potted and grown on to succeed the crop grown in hand-lights. Beans and Peas may now be sown as demand requires: a few sown every two or three weeks will keep up a regular supply. Where it is necessary to economise the ground, single rows, dividing off main crops, allowing plenty of room to prevent shading by the Peas, will give a supply large in proportion to the system of huddling a number of rows together. Peas in boxes or elsewhere grown under glass cannot be kept too well aired in fine weather. Dwarf sturdy growth, and well hardened before planting out, is necessary to success. When planting is done (which is seldom practised before March), a quantity of leaf-mould placed in with the roots is of great benefit in giving a start. Stake them to give protection; and if the position is exposed, evergreens placed along the rows for a short time will be serviceable. Garlic and Shallots may be planted in rows, about 8 or 9 inches apart in the rows, and about 6 inches from bulb to bulb. Small Onions, when planted now, are often serviceable; where grubs are destructive to main crops, a quantity of large bulbs may be planted to supply young growths or to raise seed. Plant Cabbages 1 foot each way, to be cut alternately, leaving a crop on the ground at 2 feet apart, if they are the large-growing kinds. Where ground is plentiful, such close planting as 1 foot apart is not necessary. Potatoes are often planted this month in quantity, but the tubers are apt to suffer when planted out from warm rooms

Digitized by Google

into cold soils. Those growing in frames or pits should have abundance of air, and care be taken to keep off cutting winds: earth may be added to the surface if the tubers have been planted shallow. Sow Tomatoes, and keep them growing in plenty of light, potting off the seedlings as soon as they can be handled. Treat Capsicums in a similar way. A pinch of Celery may be sown, and slightly covered in a seed-pan, and brought on gently in heat: sudden changes and checks of any kind will cause "bolting" to seed. Early kinds of Rhubarb making growth should have protection. Seakale in a cool position, covered with ashes or close pots, may give supplies till June: bring on successions as required. French Beans planted in pits on gentle bottom-heat bear very abundantly, and are not liable to attacks of red-spider: a temperature as for Cucumbers or less suits them well. M. T.

FORCING DEPARTMENT.

Pines.—The early Queens that have been subjected to an increased temperature for the last month or six weeks should in most cases be showing fruit towards the end of this month. Examine them frequently, and as soon as it is observed that they have started, give them a good watering with weak guano-water, so as to thoroughly moisten the whole ball. But any that show a disposition to grow instead of start should be kept rather dry than otherwise, or the chances will be more against their starting. When it is an object to have these ripe as early in the season as possible, to closely succeed the winter and spring fruit, the temperature may be increased in mild weather to 75°, and advantage taken of sunshine to shut up early in the day, thus avoiding as much as possible hard firing. Atmospheric moisture should not be much increased until the fruit are all bloomed off. The bottom-heat for these may range about 90°. Any portion of the stock that started in the end of October and November, and that have been well cared for, will ripen at a time when fruit is scarce, and be very acceptable. These may now be pushed on with more heat as the days lengthen and sun-heat becomes more powerful. Keep the bottom-heat steady, and give them water sufficient to keep the soil in a medium state of moisture, and the air may now be kept more moist than for the last two months. Under these conditions the fruit will now swell kindly and well. Fruit that are nearer maturity and beginning to change colour require to be kept drier in all respects in order to have them well flavoured. Look carefully over early autumn potted suckers and see that they are not becoming pot-bound, and take the first opportunity of shifting all such as have well filled their pots with roots. Let all of them that are dry at the root be watered 5 or 6 days before they are shifted, so that they may be in a state of moisture suitable for shifting. Put the necessary amount of soil in a warm place to get warmed a little before it is required. In preparing the soil choose the most fibry portion of a good hazelly rather strong loam. Break it up in the hand and mix an 8-inch pot-ful of half-inch bones and a 6-inch pot-ful of dry soot with every barrowful of loam. The compost should be rather dry before being used, and in potting ram it firmly round the balls of the young plants. The more fibry it is the more firmly it should be packed into the pots. In turning the young plants out of their pots it is best to shake out entirely any that are not in a desirable state; such, for instance, that may have been standing under a drip, and consequently have the soil rather "soured," or any that are very dry. The large-pot system is now entirely given up by the most successful growers, and Queens that are intended for the earliest fruiters should never be put into anything larger than an 11-inch pot: good drainage of course must always be secured. When all are potted, plunge them in a light house or pit where the night temperature can be kept at 60° in cold and 65° in mild weather, with a bottom-heat of from 85° to 90°. Avoid pushing these just now, otherwise they will draw, and not be so fit for what is expected of them by-and-by. Water them before the fresh soil about them becomes very dry, and avoid crowding them together. We have come to the conclusion that a given number of plants plunged thinly are much more profitable than a third more crowded into the same space. Examine later suckers, and

Digitized by Google

water such as may be getting very dry. By the end of the month these may have a temperature of 65° at night, and will be ready to be put into their fruiting-pots by the end of March.

Vines.—Where the earliest Grapes are being produced from Vines in pots and are required as early as possible, the forcing may now be carried on at an accelerated pace, especially during the day, and when the house can be shut up early with sun-heat. Under such circumstances the thermometer may stand at 85° for a while in the afternoon, starting the fire in time to prevent it from dropping below 70° at 10 P.M., when the weather is mild, but when cold be content with a few degrees less. Give a little air early in the day on all favourable occasions. Look over the Vines and pinch off all latest growths, and if the bunches are thought too thick of berries, let them be thinned out immediately, and avoid over-taxing the Vines with too heavy a crop. Eight to ten bunches are quite enough on Vines that are 8 feet long in 12-inch pots. Keep them steadily supplied with water, giving guano or manure-water made from sheep or cow manure every other time they are watered, but avoid a stagnation of water about the bottoms of the pots. Advancing crops on permanent Vines should have all superfluous bunches thinned off immediately it can be seen which are the most desirable to leave. All long straggling bunches should be removed in favour of such as have short foot-stalks, and that are compact and shouldered. As soon as Hamburgs are well set, the thinning of the berries should be completed by the time the berries are about the size of a Radish seed; and the thinning of free-setting sorts should be completed at once, for it is very undesirable to be botching about a bunch of Grapes with the scissors after they are nearly half-swelled. The night temperature in the case of permanent Vines is sufficiently high all through this month at 65°, unless when very mild indeed; 15° more with sun-heat for a while in the after part of the day is much more health-giving than high night temperatures with hard firing. Avoid a moist steamy atmosphere and the absence of fresh air, otherwise the result will be a thin sickly foliage, ultimately becoming covered with warty excrescences which prevent the foliage from performing its important functions. Give air on all favourable occasions, and let the moisture be moderated in keeping with the amount of air that can be admitted daily. These days of large panes and few and closely-fitting glass-laps make it much more necessary to attend carefully to these points than when houses were more open to every wind that blew. Where outside borders have been covered with fermenting dung and leaves, examine them; and if the heat be declining, turn it over and mix in a little fresh material. The heat will last much more steadily and longer if the rains are thrown off by some means such as wooden shutters or tarpaulin or oiled calico. Stop and tie down the young growths on later Vines as soon as they have made two joints beyond the bunches, and pinch or rather prevent the laterals from making more than one leaf. Prune all Vines from which the fruit has recently been cut, and all wounds made after this season should be dressed with styptic, else they may bleed at the time the sap begins to circulate. Wash and scrub the stems of the Vines and all the woodwork, gangways, &c., and remove the surface soil from the inside border, replacing it with fresh loam and horse-dung in equal proportions. If the surface of the border is very dry, give it a slight watering now, so as to prepare it for a thorough watering further on in the season before the Vines start. Examine Grapes that are still hanging two or three times a-week, and remove every sign of mouldy or decomposing berries before they cause decay in all around them. Give air on all fine dry days, at the same time putting a little warmth into the pipes; but keep the house close whenever it is evident that the external air is moister than that inside the vinery. We find this a lesson rather difficult to inculcate, although it must be one of the most self-evident things possible, that to open a vinery on a rainy or misty day, to admit nothing short of a cold vapour bath into a house where every surface is tolerably dry and in many cases porous, is a most destructive practice. The moisture condenses on the berries, rots their skins, and they are gone; and it is licked up by every porous, dry surface in the house. A vast many Grapes are

Digitized by Google

destroyed from the want of noting these facts.

Put Vine eyes into heat about the middle of the month, and start them gradually, as has been directed frequently for Vines themselves. Start succession-houses in a similar manner to that recommended in former Calendars.

Peaches.—Peaches should never be subjected to what may be termed hard forcing—at least not till after the fruit are stoned, or the fruit will be very apt to drop. Should the weather be cold, do not much exceed the temperature of last month. Where the fruit have set very thickly, they should be partially thinned, taking off all the smallest. Disbud the trees by degrees, so as not to check them by removing all that is not required at one operation. Syringe the trees every fine afternoon at shutting-up time, and otherwise keep up a moist genial atmosphere. Give air every fine day in the early part of the day, shutting up early in preference to leaving the houses open long, and then having recourse to more fire-heat to keep up the temperature at night. Where trees are opening their blossoms or in bloom, avoid keeping the house close and over moist, or the result will be weakly blooms. There is nothing that is so likely to cause blooms to drop off prematurely without setting as hard forcing and dryness at the root. See that trees having their roots exclusively inside have the soil about them moist. Start succession-houses to succeed those previously started. These may be started with a few degrees more heat than in the case of those started in December and January. If any of the late houses remain unpruned, the operation should now be completed; and if there has been any red-spider about them last season, brush the wood all over with a hair-brush, and with water having a little soft-soap dissolved in it, and then paint over the whole of the tree with sulphur, a little soft-soap, and tobacco-water, reduced to the consistency of paint: a little clay mixed in causes the mixture to adhere to the trees. All the wood and glass work being previously well washed, remove the surface soil, and replace it with loam and manure in equal proportions. Tie the trees when quite dry, and if the inside border be dry, give it a good watering, as the buds will now soon begin to move without fire-heat.

Figs.—See that the bottom-heat to those in pots be steadily maintained at 80°, and let the temperature be increased as the plants break into growth, and with increased heat and light they will require more water at the root and in the air. Air liberally on fine days to keep the growths short-jointed and strong. This is a good time to start trees planted out in borders from which two crops are to be taken.

Strawberries in Pots. — Where early-started plants have set their fruit, increase the temperature to 60° in cold and 65° in mild weather. These will now require a more plentiful supply of water. When in bloom, air freely on all fine days, but be careful not to subject the blossoms to currents of frosty air, or many of them will go blind. The temperature while in bloom should not range higher than from 55° to 60°, according to the state of the weather. Continue to introduce successions of plants into Peach-houses and Vineries being started, or into any other structures with similar temperatures and plenty of light.

Cucumbers.—See last month's directions. Those that were sown in January will be ready to plant out this month. The Cucumber likes a light rich soil composed of turfy loam and leaf-mould in nearly equal proportions. The loam should predominate. In planting to be grown on trellis-work, put in a plant about every 2 feet, and train up the leader without being stopped, and stop the lateral growths at every joint. The night temperature for these should be about 70°, and give a little air every chance to keep the foliage strong. Water when necessary with water at 85°. Sow for succession crops.

Melons.—These will also be ready to plant this month. Plant and train as directed for Cucumbers, but let the soil be a strong loam with about a fourth of old rotten manure, such as an old Mushroom-bed. Make the bed of soil firm, and grow the plants on with as little artificial watering as possible at this dull season, or the result will be unfruitful growths. The temperature recommended for Cucumbers is also suitable for Melons. Sow twice this month for succession crops.

Digitized by Google

Notices to Correspondents.

We have to thank those contributors who have kindly favoured us with their valued contributions, and to crave their indulgence for delay in publishing them. They will have our earliest possible attention.

All business communications should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication, unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

We wish to warn our contemporaries against a horticultural plagiarist, signing himself "A," who copies *verbatim* from other writers and attaches the above signature. This can be seen by comparing an article on "Soils and Potting," at page 114 of 'The Garden,' with a paper at page 138 of the 'Scottish Gardener' of 1862.

JOHN FINDLAY.—Many thanks: we already possess it. Where it does well it is a very pleasing variety.

A READER.—This has been a very unfavourable winter for keeping Celery. The very frequent changes from frost to rain cause it to rot; besides, the sorts you grow are not the best keepers. Another season try Incomparable White or Sandringham White, which are synonymous, and you will find them keep much better than Cole's varieties. If your ground is wet and heavy, try and mould up with some lighter soil next the stems, and throw off heavy rains by some means, such as hurdles thatched with straw, or wooden shutters.

J. F.—Your interrogations show that you do not require much instruction from us or any one. Cut them down by all means if they are too high for the position they occupy. The middle of April, after danger from very severe frost is over, will be a good time. Cut above the clefts, and to 3 feet as a rule. The underwood branches should also be shortened back, to give symmetry to the plants. If your situation and soil are light and dry, top-dress, after cutting them, with 2 inches of thoroughly-rotten manure or leaf-mould, in order to protect from drought, and stimulate the plants. Early-flowering and growing sorts are not so suitable for cold situations as the later sorts.

A. K.—We do not wonder at the "row" your heating apparatus makes with part of your pipes 12 inches below the level of your boiler; any portion of the pipes should not be below the level of the boiler; and your apparatus will not act as it ought to act until they are altered. Your air-pipe should be at the highest point of your pipes, and is best always open, as it then needs no attention; whereas an ordinary tap does, and is often neglected. Your case serves to show the necessity for a better knowledge of the laws of heat and gravitation in connection with hot-water boilers and pipes. Get Mrs Marcet's 'Conversations on Natural Philosophy,' and study them.

Digitized by Google

T. P.—We do the best we can to meet the wishes of all. It is a matter over which we have no control, unless at very great expense, of which we know of no other example.

N.S.—You will see your want fully met in Calendar for this month.

VITIS.—Build at an angle of 45°. Chambered and heated borders are only to be recommended for very early forcing, such as when forcing begins in November and December. The curvilinear form of roof we do not approve of; it is expensive and wrong in principle, as it condenses the rays of light, and is more apt to scorch. Iron houses are colder, but last longer, of course, than wood.

A SUBSCRIBER.—Rampion is very easily cultivated. Sow about the middle of March in rich light soil, just covering the seed with some finely-broken soil. If it comes up thickly, thin it out the same as you would a Radish-bed. You may sow at intervals of a month for succession.

A CONSTANT SUBSCRIBER.—We cannot undertake to name a species of so numerous a family of plants, embracing so many nearly alike, from a leaf. Keep it dry at the root and in the full sun, and more than likely it will flower. If you cannot change your Onion ground, water the beds with 20 gallons of water in which have been mixed 1 peck unslacked lime, ½ peck soot, 1 lb. soft-soap, and 2 lb. flower of sulphur. If your ground has not been trenched of late, trench it, and expose it in a rough state of frost.

CORYCIUS.—Mix dry soot and newly-slacked lime in equal proportions, and dust your trees over with it every spring. See that your ground is well drained: stagnant or too much wet in the soil is often the sole cause. The ordeal you propose for the Pampas grass is rather too severe. Cut away all the debris to within a foot of the soil, and open a trench round the roots, and give it some good soil and rotten manure to feed on: this will reinvigorate the plant, and when in full growth water copiously in dry weather.



Digitized by Google

THE GARDENER.

MARCH 1872.

STRAWBERRY FORCING.

THE Strawberry is a grateful and universally-esteemed fruit. As a member of the dessert it is at all times most welcome, more especially in the spring of the year, when luscious fresh fruits are least plentiful and most expensive in the markets. The culture of the Strawberry in pots for forcing is now very general in gardens of the most moderate pretensions; and the art of forcing it has now become very perfect, as compared with what we recollect it to have been. It is not now an uncommon thing, in the more extensive forcing establishments, to force from three to six thousand pots annually; and in some of the more gigantic places we are informed that as many as from eight to ten thousand are fruited in pots. The Strawberry, however, can be forced more or less by all who possess a glass house or pit, it being a fruit that can be ripened in great perfection in almost any glass structure, almost without artificial heat, a little before it is fit to gather in the garden quarters.

To be successful in forcing the Strawberry early, it is of very great importance to get young fresh plants established and well matured in pots early in the season: and the order of our remarks will be, first, the best mode of producing young runners early and strong; and next, the after-treatment necessary to grow them into fine strong plants suitable for early forcing, before the natural season of growth ceases. The routine of forcing shall be dealt with on a future occasion.

In the course of many years' successful practice, we have tried various ways of getting early healthy runners. Besides other methods, we have allowed the parent plants to produce young runners when being forced in March, April, and May. These we have rooted under glass in

Digitized by Google

small pots, hardening them off and growing them on in the usual way. Very small runners have been selected from out-door plantations in autumn, pricked off in light rich soil, and lifted and potted about midsummer. We have left the runners on those which ripened their fruit in April and May, planted out the parent plants, carefully preserving these runners, and layering the young plants produced in this way. The last-named is the best of these three methods, and plenty of first-rate plants for forcing are so produced. But the best way that we have ever adopted, either in England or Scotland, is to make a plantation of the best runners that can be had in September from those plants that were forced the previous spring. These plants are planted expressly for the purpose of producing fine strong early runners for potting the following summer.

This autumn plantation should be made in a warm situation, and in a rather light, well manured and worked soil, in lines 2 feet apart, and only 6 inches apart in the line. This close planting we adopted simply for the sake of procuring the necessary stock for potting in the smallest and most convenient space, it being much more convenient to layer and attend to them after they are layered than when scattered over a greater space. These autumn-planted runners in their turn throw out beautiful strong runners early in the season, and these are chosen for the production of plants for early forcing the following season. In ordinary seasons these young runners are ready to lay the second week of June, which is earlier than ever we have been able to get as fine runners from plants forced and planted out in spring; and in ordinary cases older plantations of Strawberries produce "spindly" runners that never make such fine plants as the fine growthy ones produced by the method described.

In preparing the young runners for their fruiting-pots, we have also tried various ways — such as spreading equal proportions of loam and leaf-mould between the rows, and laying them in it without pots. At other times we have crocked and filled the fruiting-pots with soil, and layered the runners at once into them. But while both these methods can be adopted with success, we prefer, as soon as the young plants begin to push out roots, to lay them in 2½ and 3 inch pots firmly filled with two parts friable loam and one part of leaf-mould. These pots are plunged between the rows of Strawberries, a single runner laid on each pot and gently pressed into the soil, taking care not to bury the heart of the young plant. A small stone is then laid on the stem immediately behind the young plant, to keep it firmly in its place. A peg of wood answers the same purpose, but the placing of the stone is fully more convenient, and it serves to conserve moisture in dry weather. All the runners should be stopped beyond the plant

Digitized by Google

laid, and in dry weather they require to be well watered every afternoon. Managed in this way, they can be removed expeditiously, and without the least check, when well rooted and ready to go into their fruiting-pots, which is generally in about three or four weeks after they are layered. And if they are required for ripening fruit, say in the early part of March, they are most satisfactory when shifted into their fruiting-pots between the first and middle of July—a few days either earlier or later is not of much importance. The guiding-point should be the condition of the young plants. They should be well rooted, without being what gardeners call matted. A safe criterion is to take them just as soon as they are sufficiently rooted to enable them to be shifted without the ball being broken. When layered in fine soil without pots, they should be lifted and potted when sufficiently rooted to make them easily lifted with balls and without mutilating their roots.

The sizes of the fruiting-pots is of much importance: 5 and 6 inch pots we have always found most satisfactory; in the case of all plants from which ripe fruit are to be produced by the first of April, 5-inch pots are to be preferred. For those to be forced later in the season, pots 1 inch larger are to be recommended. In the smaller size, when forced early they throw up their bloom-stalks more strongly, set better, and yield as large fruit as in larger sizes. The larger size is better later in the season, when the plants require much more attention in watering. We have tried experiments by selecting some of the very finest plants and shifting them into 8-inch pots, but the result was never satisfactory. For any plant to force well, it is of the first importance to have the pot thoroughly filled with roots; and in larger pots than those recommended, this condition is more difficult of attainment. The pots should either be new from the pottery, or thoroughly washed and dried. And they should be carefully crocked; for although the Strawberry requires much moisture, it never thrives in a soured soil or with stagnant water. There should be an inch of small crocks in the bottom of the pots, and over all a little of the fibry part of the soil.

The selection of soil with which to pot or shift into the fruiting-pots is of much importance. Presuming that one-third of the plants are to be put into 5-inch pots for early forcing, choose for them a friable hazelly loam, and mix with every three barrow-loads of it one of thoroughly-decomposed manure, consisting of an old hotbed or Mushroom-bed in a dry state, and sifted through a ½-inch sieve, so that it can be well incorporated with the loam. To every four barrow-loads of this add an 8-inch pot full of bone-meal; mix the whole well, and instead of removing any of the fibry part of the loam, grind every

Digitized by Google

morsel of it through a ¾-inch sieve, as large lumps of it become inconvenient in shifting into such small pots; moreover, the fibre gets more completely equalised and incorporated with the general compost. If a good, rather light loam cannot be procured for these early plants, a heavier loam can be lightened by adding a small portion of clean gritty sand, or, what we prefer still more, some finely-sifted old mortar or old plaster-lime. For those intended for fruiting under glass up to the time of out-door Strawberries, 6-inch pots are to be preferred, and also a loam of a rather more holding or adhesive character, but mixed with the same manurial ingredients recommended for the early plants; thus giving a soil of a more retentive nature, more suitable for the sunnier months of April and May, when more moisture is required.

In shifting the plants, the soil should be firmly packed round the balls, so as to get as much of it into the space as possible, and also to prevent the too free escape of water between the ball and sides of the pot. Care should be taken that the hearts of the plants are not immersed in the soil; and there should at least be a quarter of an inch of the pot left unfilled up, so that the watering can be effectually done.

When shifted, they should be thoroughly watered through a rose, and allowed to stand in some position where they can escape the mid-day sun for a few days; then remove them to some warm place where they can have the full sun all day, and at the same time be sheltered from high winds, which would lash and injure the foliage. We have generally placed the plants on a raised trellis-work, in order to prevent worms from getting into the pots, and also to prevent them rooting through into the ground. The precaution in the latter condition is very necessary, for if placed on the ground they are sure to root through, and if left to themselves the roots will to a great extent desert the pots. In the case of the smaller pots, which dry most rapidly, it is well to pack the space between the pots with half-decomposed leaves or moss. In placing them, they should have as much room as will allow each plant to stand quite clear of its fellow, and be quite level.

Watering must now be carefully attended to. The pots being efficiently drained, and the soil firmly packed in them, there is little fear of overwatering them as long as they continue in active growth. In very hot weather they may require watering morning and afternoon; and on the evenings of very warm days a syringing overhead, just as the sun is leaving them, is very refreshing to them. But this latter must not be continued when the dews of autumn nights set in. As soon as the roots reach the sides and bottoms of the pots, liquid manure may be given every other day. Clear soot-water, guano,

Digitized by Google

sheep or deer's manure-water, are all excellent for Strawberries. The principal point in applying water is to make sure that the whole ball is thoroughly soaked; and in applying liquid manures, not to slop it about the foliage, on which it leaves more or less of a sediment.

Do not allow a weed to appear in the pots; remove every attempt at runner-making, and occasionally stir the surface of the soil, adding a light sprinkling of fine soil, in which is mixed a little bone-meal or soot, and pressing all firmly down again. Under such treatment, it will be found that on turning them out of their pots by the end of September the balls appear literally roots, and nothing else; so much so, that they might be thrown across the garden without the ball being broken. The crowns will be firm, well developed, like the end of a man's thumb, the footstalks of the leaves strong and short, supporting broad dark-green leathery leaves—sure criterions of the plants being in the best possible condition for forcing the following spring.

Should the weather be very wet in October, we would recommend that they be placed in cold frames, where they can be protected by glass from continuous rains, and fully exposed when the weather is fine. When this cannot be done, lay the plants down on their sides rather than expose them to continuous rains. By the end of October the plants will have completed their season's growth, and the object in regard to them now is to rest them, and protect them in a cool state from heavy rains and hard frost. Where cold frames covered with glass can be spared for them, perhaps they are best stored in them having the pots plunged in ashes, half-decayed leaves, or sawdust. They should have plenty of air on all favourable opportunities, and during severe frost a single mat or a little dry straw thrown over the glass is protection sufficient. When cold frames or any cool place under glass could not be spared, we have kept them perfectly safe by building them into ridges, laying one row of pots on their sides above the other, and packing between and round the pots with ashes or sawdust. In this way they escape rains, and are preserved from getting dry or excited, and in times of severe frost are easily happed with mats or straw, easily uncovered in fine weather, and as easily got at when required for forcing. EDITOR.

BOTTOM-HEAT.—I have been much interested in Mr Simpson's idea of applying bottom-heat to fruit-trees, and trust he will put it in practice, and in due time let us know the result.

At my father's the flue of the house-conservatory passes under the lawn into a plantation to hide the chimney. The strip of lawn above the flue grows much earlier and faster than the rest in spring. It would seem, therefore, that the principle might be equally applied to growing early vegetables. It could easily be worked by taking the flue of any boiler under the adjoining beds before raising it as a chimney. E. P.

Digitized by Google

NOTES ON HARDY CONIFERS.

PINUS.

(*Continued from page* 59.)

Pinus Insignis—*The remarkable Pine.*—Discovered and sent home by Douglas in 1833 from California, where he found it in several districts, but chiefly near Monterey, on mountains near the coast, and rising to heights of from 60 to 100 feet. Its merits as a distinct and handsome ornamental Pine can scarcely be overrated, forming as it does a fine symmetrical, though by no means formal, tree, densely furnished with branches; while the warm grassy-green foliage, with which it is so abundantly clothed, contrasts pleasingly with the more sombre hues of most of the other species. From its natural tendency, particularly while young, to make late autumnal growths, and as a consequence to be damaged by frost, some planters have been deterred from introducing it so extensively, or from giving it that prominence which they would otherwise do; hence its absence in many of the best collections of Conifers. It is, however, a very hardy species, and needs but to be planted in such a situation as will secure its growths being thoroughly ripened before winter. A high, airy, yet sheltered position, as far as practicable shaded from the morning sun, and a dry porous subsoil, will suit it admirably, and render it proof against any amount of frost it is likely to be exposed to in this country. The leaves are from 4 to 6 inches long, and generally, though not always, grouped in threes.

Radiata—*The radiated Cone Pine.*—Discovered by the late Dr Coulter in 1830 growing on mountains near the sea in Upper California, and attaining the height of 100 feet. In this country it has proved a very hardy and highly ornamental tree, well furnished to the ground with branches. In general appearance it resembles Insignis, of which it was formerly regarded as a variety. It is, however, quite distinct, the leaves being much shorter, and the cones nearly three times the size of that species. It has, moreover, been found to be much hardier, and less susceptible to damage from early autumn frosts, thriving well in more exposed situations, and even with moderate shelter within the influence of the sea-breeze. It should be planted in a dry sandy soil. The leaves are usually in threes, from 3 to 5 inches long, slightly twisted, densely set on the branches, and of a rich green colour.

Lambertiana—*Lambert's Pine.*—This gigantic tree is found distributed over vast tracts in Northern California and North-West America, attaining heights of from 150 to 200 feet, and from 20 to 60 feet in circumference near the ground, and was first introduced in 1827. It is quite hardy in all parts of Britain, forming a handsome pyramidal

Digitized by Google

specimen, with abundance of branches disposed regularly on the stem, and is also most admirably adapted for grouping or blending for backgrounds in landscape-gardening. It grows vigorously in dry poor sandy or gravelly soil, preferring a north exposure if slightly sheltered. The leaves are usually in fives, from 4 to 6 inches long, stiff, of a fine yellowish-green colour, and densely set on the branches.

Fremontiana—*Colonel Fremont's Nut Pine*—is a singularly interesting species, introduced in 1848 from California, where it occurs in great abundance in several of the high mountain-ranges, rarely attaining a greater height than 20 feet. The seeds, which are of an agreeable flavour and very nutritious, form the principal winter and spring sustenance of the Indians who inhabit the mountains. In this country it has proved perfectly hardy, thriving best in light dry soils and open situations, forming a neat distinct-looking conical tree, densely feathered with branches. It is, however, a very slow grower, and should only be planted on the margins of walks, or where there is no probability of its being hidden or overshadowed by the more robust species. The leaves are generally in threes, sometimes in fours or fives, and not unfrequently in young plants singly, from 1½ to 3 inches in length, very stiff, and glaucous-green.

Rigida—*The stiff-leaved Pine.*—Introduced in 1750 from America, where it is found in great abundance from New England to Virginia, growing in almost every kind of soil and altitude, rising to heights of from 50 to 80 feet. It is quite hardy here, and has a very neat habit of growth, well furnished with robust branches, covered densely with foliage. It is a fine plant for growing as a single specimen, thriving well in most soils if well drained. The leaves are usually in threes, very stiff and sharp-pointed, from 3 to 5 inches long, and light green.

Tuberculata—*The tuberculated Cone Pine.*—From Upper California, first discovered and described by Dr Coulter some forty years ago, and more recently by Mr Jeffrey, who sent seeds home in 1848. It is found growing close to the sea-beach on poor sandy soil, and rarely rising to more than 30 feet in height. Though quite hardy enough for our climate, it is of very slow growth, but forms a nice lawn specimen-tree, having a conical shape, and well furnished with branches disposed irregularly on the stem. The leaves, which are very densely set on the branches, are usually in threes, from 4 to 5 inches long, stiff and broad, and of a bright-green colour.

Ponderosa—*The heavy-wooded Pine.*—This noble tree is found in great abundance, and distributed over a large tract of country on the north-west coast of America, growing to a height of 140 feet. It was first introduced into Britain in 1826. It is much valued for its timber, which is said to be very durable, and so heavy as to sink in water. It

Digitized by Google

is perfectly hardy here, and grows with great rapidity if planted in rich loam or alluvial soil, and in a situation not too much exposed to wind; the branches are very robust, rather drooping, regularly disposed in whorls, and not very numerous. The leaves are usually in threes, from 8 to 10 inches long, broad, slightly twisted, and bright green. It forms a singularly effective specimen-tree, contrasting well with other species of a denser habit.

Koriensis—*The Corean Pine*—is a dwarf, slow-growing species never exceeding 20 or 30 feet in height, introduced into this country from Japan, where, as well as in China, it is extensively cultivated in gardens, though rarely found wild, its principal habitat being the peninsula of Corea on the sea-coast, growing in dense forests, the seeds which it produces affording to the natives an important and wholesome article of food. Resembling Strobus in its slender thread-like leaves, and Cembra in its compact conical habit of growth, it is one of the most beautiful of our hardy Pines, and may be introduced into the most prominent positions of the highest-kept grounds with the happiest effect. It prefers a loamy soil moderately dry; the leaves are usually in fives, from 3 to 4 inches long, and of a glaucous-green colour.

Jeffreyii—*Mr Jeffrey's Pine.*—Found by Mr Jeffrey in the Shasta Valley, Northern California, and sent home by him in 1848; is a noble tree, attaining a height of about 150 feet. It is quite hardy here, and forms a remarkably handsome specimen-tree, admirably adapted for lawns and pleasure-grounds. In general appearance it resembles Benthamiana, but is quite distinct from that species, being of a more robust habit of growth, and the foliage of a deep bluish green. It will grow well in most soils, but prefers a light sandy loam with a porous subsoil. The leaves are usually in threes, from 8 to 9 inches long, and densely set on the points of the shoots.

Sabiniana—*Mr Sabine's Pine.*—This beautiful tree is found distributed over a large area in Upper California, growing in high but damp situations, and attaining heights of from 80 to 150 feet. It was first sent to this country in 1832, and has proved quite hardy. It thrives best in a rich deep loamy soil, and in an airy situation sheltered from cutting winds. The branches are somewhat slender, but numerous and regularly set round the stem. The leaves, which are usually in threes, are from 10 to 12 inches long, twisted, and of a pleasing glaucous-grey colour. They are very dense at the points of the branches, a peculiarity which allows the fine violet bloom with which the bark is covered to be seen to advantage. It is a handsome plant in all stages of its growth, and indispensable where scenic effect is desired, either in the pinetum or in mixed ornamental grounds.

Balfouriana—*Dr Balfour's Pine.*—Found by Jeffrey on mountains

Digitized by Google

in Northern California, growing in soil composed for the most part of volcanic debris, and attaining heights of from 50 to 80 feet; was named in compliment to the present distinguished and enthusiastic Professor of Botany in the University of Edinburgh. It has proved perfectly hardy, and, though a slow-growing species, is undoubtedly one of the most distinct and handsome Pines in cultivation, forming a fine symmetrical lawn specimen-plant, well furnished with branches to the ground. It grows well in any light loamy soil if the subsoil is dry and porous. The leaves are usually in fives, from 1½ to 2½ inches long, thick and rigid, slightly curved inwards, thickly set on the branches, and of a light silvery-green colour, giving the plant a peculiar and striking appearance. It is a most interesting and desirable, though as yet a very scarce, species.

Macrocarpa—*The large-coned Pine*—also known as Coulterii, is a magnificent tree, noted for the great size of its cones, which are sometimes 14 inches long, 6 inches broad, and weighing from 3 to 4 lb. It is found plentifully in various parts of California, growing on high mountains near the coast, from whence it was first sent home in 1833. It has proved one of the hardiest of the Californian Pines, growing freely in almost any situation, if dry and tolerably sheltered from wind; forming a most distinct and striking landscape-tree, as well as a handsome specimen when planted in lawns or parks. The branches are in regular whorls, horizontal, but slightly turned up at the extremities; and though not very abundant, the dense clothing of long leaves gives the plant a graceful and furnished appearance. The leaves are usually in threes, from 10 to 12 inches long, rather rigid, and of a bluish-grey colour.

Monticolo—*The Mountain Pine.*—Introduced from Northern California in 1831, where it grows on the highest mountains in poor, shallow soil, composed of the debris of granite rock, and rising to heights of from 60 to 100 feet, with a circumference of from 4 to 6 feet near the ground. It is very hardy here, and forms a compact, conical tree, somewhat resembling the Weymouth Pine, but far denser in habit, and with shorter and lighter-coloured leaves. The branches are disposed in regular whorls, very abundant, and well clothed with leaves. Few of the species are more beautiful, or more deserving of being extensively used for the enriching of either woodland or garden scenery. It grows vigorously in most soils, if loose in texture and the subsoil porous. The leaves are usually in fives, from 3 to 4 inches long, slender, and of a distinct silvery-glaucous colour, especially while young.

Sylvestris—*The Scotch Pine.*—This well-known and useful tree has a wide geographical range on the continent of Europe, and is the

Digitized by Google

only true Pine indigenous to this country, being found wild in the Highland mountains of Scotland, varying in height, according to the soil and situation, from a mere bush to a lofty tree. Though from its extensive cultivation—not only in Britain, but all over the Continent—for timber, it is not usually classed among ornamental trees, it should never be altogether omitted from such collections. None of the species has a finer effect on the landscape, either when planted in groups or as single specimens—its dark foliage and grandly picturesque form commending it to all who have a taste for the beautiful in scenery, while its extreme hardiness and dense foliation render it invaluable as a shelter-tree, or as a nurse to the more tender sorts. There are many very distinct and desirable varieties, differing more or less from the species in colour of foliage and habit of growth, among which may be noted aurea, with a beautiful golden variegation; nana, a very dwarf form with a globular habit, rarely growing higher than 2 or 3 feet; pendula, with somewhat drooping branches; and horizontalis, with its branches disposed in a horizontal direction from the stem. This is the Speyside and Braemar variety, and regarded as the hardiest, and as producing the most durable timber.

Both the species and varieties accommodate themselves freely to almost any kind of soil and situation, but prefer a cold stiffish clay if well drained, and an elevated though not too much exposed situation. The leaves are usually in pairs, from 1½ to 2½ inches long, rigid, and vary, according to the variety, from a dark-green to a slightly glaucous colour.

HUGH FRASER.

CHRYSANTHEMUM (ANTHEMUS) FRUTESCENS.—This is one of the easiest grown of plants, and as a white flowering one for continuing on through the winter, for decorative purposes, perhaps there is none more valuable. To some its flowers may appear too common, but many appreciate it; and to a certain extent it may remind one, who is not acquainted with it, of the common but immortalised Daisy. It is called by many the "French Daisy," and has flowers more like a "Horse-Gowan" than anything I can at present remember of; but then it is very different from that plant in the profusion in which it bears its flowers. At the present time we have them in various sizes, from plants 4 inches across and 6 inches high in flower, to a plant resembling a huge fancy Geranium in a sheet of white. It is not in many places that I have observed this plant much used for winter-work, although it is used to some extent as a bedding-plant in some places. But as a winter-blooming plant for the ordinary decoration of the conservatory, for giving a fine display of white flowers without a great deal of trouble in its cultivation—I beg to submit these few lines in its favour. It is a plant that stands house-decoration well mixed among other plants in baskets, and sometimes it can be useful as flowers for ladies' hair.

R. M.

[One of the most effective and useful of plants.—ED.]

Digitized by Google

MARCH FLOWERS FOR THE CONSERVATORY.

MARCH is the starting-post from which the gardener takes his departure on his race round the year. The three preceding months are pregnant of plans and weighty resolves, the following months a neck-to-neck struggle with time, weather, adverse appliances, and all sorts of frictions; and happy he who finishes the race equal to his anticipations in a satisfactory canter. March has been felicitously called the key-note of the gardener's year—sowing and propagating, planting and hoeing, are the burden of the song. March, we think, also sounds the finest chord in the conservatory; mentally, colour is akin to music. In March we have the softest, most varied, and most brilliant display of colour in all the year, thanks to the flowers of spring borrowed from the nearest continent, and to shrubs from the far East, which have been so transformed that they are scarcely to be traced to the original introductions.

We have already noticed some of these in two papers of this year on Shrubs and Bulbs whose greatest beauty will culminate in March. We now propose to notice a few more subjects which swell the tide immensely this month. The Camellia deserves the foremost place. When well grown, no plant surpasses the Camellia: it, with Roses and Rhododendrons, is our floral Trinity. The Camellia, to be had in perfection, should be planted out in a border in the conservatory—the quality of the blooms and foliage far surpasses those grown in pots, however well done; and some varieties develop unexpected vagaries in colour, which are but faintly or not at all indicated in pots. The imbricated-flowered section seems to be the one most sought after now, which is a pity; we think many of the older Anemone-flowered varieties beat them in delicacy of colouring and marking. With regard to their culture, we say, Pot those at once which require it, and examine the drainage of all. Do not allow those intended to be grown into large plants to get stunted when young, although when a Camellia gets old it does not need much pot-room if well attended to with manure: ours were all potted in February. For soil use turfy yellow loam, with plenty of sand, if the plants be large and in good health, and especially for those in tubs; but we prefer tough fibrous peat for smaller plants. The soil we now use is neither loam nor peat, but a tough fibrous-yellow material, something like a Cocoa-fibre door-mat, and full of white sand naturally; it is cut from a dry common, where Fern and a hard sort of grass grow. Use water lukewarm at all times, and plenty of it, and occasionally a little guano-water. In the south, and along the west coast, Camellias should be stood out of doors in June, in a situation perfectly sheltered on all sides, and slightly shaded, the roots top-dressed with cow-manure, and well attended to with water as above. Draughts, dryness at the root, or a dry hot atmosphere, will make short work with the flower-buds, and soon emaciate the foliage. The Camellia is all but perfectly hardy in Britain, entirely so on the south and west coasts. Too much cutting also soon sickens the Camellia in pots. It does not make its wood-buds the same season it makes its growth; and, without foliage, it is, unless in very good health, slow to break. It is easy, therefore, to cut a plant to death, even though the roots be good. We much dislike cutting wood with the flowers from pot-plants; pick the flowers off and stick them on wires or sticks—they last just as long.

The Indian Azalea is the next on our list, second to the Camellia, though, when in bloom, the most showy. With liberal treatment it is easily managed, and pays its debts with interest. Azaleas come readily into bloom in March with little forcing, if previously prepared; the old white may even be had in bloom

Digitized by Google

eight months in the year. They should be potted as they go out of flower in tough fibrous peat; we use our Camellia soil and plenty of sand. Syringe them night and morning in a moist heat, such as a Peach-house at work. Old plants may be top-dressed with sheep's dung or rotten cow-dung; or guano-water may be used weak; or, better still, Standen's manure. After the growth is made, the plants should be stood in the open air in a perfectly sheltered warm place, open overhead; the autumn rains do them a deal of good. Thrips on Azaleas means dryness. It is useless to force Azaleas unless their buds are well forwarded early in the season: if this be so, much heat is not necessary to bring them into flower; more progress will be made in a moist house slightly heated. The varieties of the Azalea have become so numerous that it is needless to mention names; the old white stands its ground like the old white Camellia. They are the patriarchs of the two families, who wait and welcome all the new-comers. Old Azaleas may be invigorated by being shook out and repotted; and plants which have become stunted will, with care and patience, break into healthy growth. The effect of a batch of well-bloomed Azaleas in the conservatory is magical. For bouquet-making they are first-rate, and may be cut at pleasure. Neither they nor Camellias are favourites with us for the dinner-table; they obstruct the view, and are lumpy under any form.

ROSES.—The management of each of these three subjects would require a paper to itself. The earliest lot of forced Roses will be nicely in bloom by March; ours have now—the second week in February—well formed their buds. For Roses to force, we like to start from young plants on their own roots, and shift them onwards. After the plants have done blooming, and have rested a bit, taking care of the foliage, we repot them if necessary the end of May in yellow fibrous loam, with a proportion of rotten dung and a few rough bones: then is the time to augment the stock from the nursery to be seen to with the rest. When potted they are stood in a turf-pit on coal-ashes, and the pots surrounded with sawdust, in the full sun; the sawdust retains moisture, and equalises the sun's heat. They are here well attended to with water and manure, all flower-buds picked off up to September, when a dozen or two of the Hybrid Perpetuals are selected, and allowed to come forward for late autumn blooming indoors. Before severe frost sets in the whole are removed to the Orchard-house, where, after the foliage has ripened about the middle of December, and the plants become rather dry at root, they are pruned, and the first lot selected to start in the early Peach-house about the beginning of January; the late-bloomed ones are pruned as the flowers fade or are cut. To be forced later, they should be forced slowly with all the light possible, syringed in fine weather, and fumigated as required. Start with healthy plants and strong growers; take care of the foliage and drainage, and success is certain.

PINKS will be in bloom in quantity in March with but little forcing. Anne Boleyn Pinks come in with the Tree Carnations throughout the winter with the same treatment, but for spring we use the old double white Pink and Pheasant's Eye, than which none are sweeter or flower more abundantly. They are easily struck from pipings under hand-lights in July and August on the shady side of a hedge; or pieces may be slipped off and planted in the open ground in September. We pot up plants in the autumn of the second year from the piping, which have been grown for the purpose, and plunge them in the open air until the end of November, when they are removed to a shelf near the glass in the greenhouse or vineries. They come forward without any trouble, and yield whole sheets of bloom. When done blooming the plants may be thrown away or planted in the shrubberies.

Digitized by Google

March is the month for the Cyclamens, although they have been flowering more or less since Christmas. They are easily raised in great variety from seed sown now, and grown on with attention in a warm pit until summer, when a cold frame is the best place for them. They will bloom in 3 or 4 inch pots the first year, in which state they are exceedingly neat as edgings to flower-stands. Large plants are beautiful for small vases about rooms. They should be potted into a rich compost of loam, leaf-mould, rotten cow-dung, and sand about July, not covering the crown of the corm, grown on in cold frames until October, taking care not to over-water at first, removing them to the greenhouse for the winter, where they like to be rather airy. When they have done flowering, and the foliage beginning to decay, withhold water gradually. Finally, they may be turned on their sides in a cold frame until growth gives the signal for potting-time again. Cyclamens are easy to manage, and nothing is more neat for front finishing-lines in the conservatory, for stands, or cut flowers: 100 plants of the second year are now bristling with buds and flowers, and scarcely two plants are alike in colour. Within two miles of where this is written there is a bank of Cyclamen Europeum, where there are thousands in bloom in September as plentiful as Primroses—a beautiful sight!

Acacias.—Several of these will be in full dress in March, though flowering earlier and later,—Armata, Grandis, Drummondii, Dealbata, Riceana, &c. They are all easily grown, potted in a mixture of loam and peat, and treated to as much outdoor culture as possible: they should be cut back into shape when done flowering, potted, and stood in the full sun. The cutting does not apply to Riceana, which has a stiff pendulous habit, and stiff awl-shaped leaves: when a good size it looks well as a vase-plant, or for the dinner-table.

Chorozemas are exceedingly showy, and are also easily managed, and should be grown under the same conditions as the Acacias, but require to be trained to balloons or stakes, but the flowering-sprays allowed freedom. Laurencianum and Varium are good sorts, and are at their best in March.

Cytisus racemosus comes in for March and succeeding two months, and should be grown in quantity where there is a large conservatory to supply. The points of the young shoots strike quickly under bell-glasses in a little heat, or seed may be saved and sown; it should be grown in loam, dung, and sand. To have fine spikes of bloom, a succession of young plants should be kept up. After it is done flowering it should be potted and stood in a perfectly-sheltered situation to make its growth about the beginning of June. Plants in 4-inch pots are useful for edging: we grow it in sizes up to 6 feet in 12-inch pots.

Forcing Pelargoniums are a fine feature in the conservatory in March. A few dozens of the Old Gauntlet, Larkfield Rival, and Crimson King, and Albion of the old Alba multiflora type, make a fine group. Now is the time to start with cuttings in single pots on a shelf in the stove. Cut the old plants down in June, shake out and grow on in frames the rest of the summer: they will be in bloom in November and December, and will, by the middle of February, be showing again abundantly; do not over-pot them, but feed in spring with liquid manure. They would even last out the summer Pelargoniums if allowed.

The main show of Cinerarias is now, the middle of February, coming in, and will culminate in March. They are better then than later in the south, as the bright suns of spring soon exhaust them; coolness, perfect shelter—that is, no draughts—abundance of moisture and pot-room, are the main points of their culture from the seedling in March to the flowering-plant in the same month. They should never be stewed under glass, and have no more fire-heat in winter

Digitized by Google

than is absolutely necessary. Ours were in cold pits up to the beginning of December, when they were removed to Peach-houses and a vinery at rest. Fly is their worst enemy, both at top and root. Turn the plants out of their pots for the night, and fumigate them. The habit and colours of this plant are now so much improved that, like the herbaceous Calceolaria, it need only be grown from seed.

SHRUBBY CALCEOLARIAS come in to swell the show in March; these we grow out of doors for the purpose of selecting plants from the general bedding-out lot of such sorts as Victor Emmanuel, Mrs Burns, Sparkler, Coccinea floribunda, and various of the yellow varieties. These we plant on a prepared piece of border about 18 inches apart, and keep all flowers pinched off them throughout the summer. In October lift and pot them, and store them in cold pits for the winter. Now (the middle of February) they are compact bushy plants, covered with flower-buds ready to open, and will well repay the trouble in March. Their herbaceous relations will follow them closely; these, like all soft-wooded decorative plants, should be attended to with liquid manure. We intended saying a few words about conservatory climbers, but will leave it till next month.

THE SQUIRE'S GARDENER.

RIPENING PINE-APPLES.

AFTER bringing a batch of Pines forward successfully to the colouring period, I think no one will deny that it is worth while trying to complete the success by getting as high a finish as possible. According to our experience, a really well-finished Pine is a much rarer object than a well-finished bunch of Grapes, allowing for the fact that Grapes are more generally grown. Of handsome size we see Pines sometimes; but how often are they of that dingy yellow colour and juiceless appearance which are always indicative of poor flavour! Pines differ in colour, of course, from the bright yellow of the Queen to the deep orange of the Enville, though the latter is oftener seen of a dirty-white colour; but whatever the variety may be, the plump, glossy, and shining appearance which every properly-ripened pine-fruit presents cannot be mistaken even by the uninitiated. It would appear to be an opinion commonly entertained, that a Pine will stand any amount of "squeezing," as it is termed, after the fruit begins to change; and we have seen the plants set on the bare bricks, immediately above a boiler, and all water withheld, to complete the ripening process, though roasting would be a more appropriate term. A Pine will endure such an ordeal, but a wizened and sapless specimen will undoubtedly be the result. The best authorities on Pine-culture are particular in cautioning cultivators against extremes of temperature, especially very high temperatures; and no doubt the caution is meant to apply to the Pine from the time it is first potted, as a sucker, till the fruit is cut. It may be expedient sometimes to hurry a batch of Pines forward as quickly as possible, but, as a rule, the time required to produce ripe

Digitized by Google

fruit, reckoning from the date of starting the plants, may be calculated pretty accurately, and it is better to begin in time, and by attention to temperature at all stages, and careful economy of sun-heat in favourable weather, to bring the fruit on steadily to the end, rather than resort to a high and hurrying temperature just at the last, which is sure to result in light weight and inferior flavour.

We are at some pains, when the fruit arrives at the ripening stage, to get a good finish, and have generally fairly succeeded. To accomplish this we have never deemed it advisable to keep the plants dry, either at root or top, but have always watered abundantly when needful as at other times, and syringed moderately overhead in clear weather; being guided, of course, by the season of the year, and not forgetting to ventilate freely, while keeping up the temperature with sun to 85° or 90°, and bottom-heat the same. We do not advocate shading as a rule, but in our lean-to pits here, where the Pines are close to the glass, we find that the fruit when just about ripe cannot stand the direct rays of the sun without injury, as far as appearances are concerned at least. The pips get browned and have a rusty look about them, instead of that shining transparency which is so characteristic of a plump and thoroughly well-ripened "Queen" Pine particularly. We, therefore, just streak the glass very thinly with a little whiting above each fruit as they are noticed to be about changing. This effectually breaks the strong glare of the sun, and greatly saves the appearance of the fruit.

By the above course of treatment we succeed in getting fruit heavy for their size, plump and symmetrical, and of the highest finish attainable. Some varieties of Pines are more juicy than others, but a vast deal depends upon culture. We have seen Queens, for instance, which, had they been cut, would hardly have moistened the bottom of the plate; others, again, that would have flooded it. On unpacking Pines for exhibition, we have often found the cloth in which they were wrapped and the cotton packing saturated with the juice of the fruit which had oosed out during the journey, and still so abundant when the fruit was cut many days after as to nearly fill the bottom of the plate.

Some cultivators, on very reasonable grounds, recommend lifting the plants out of the pit before the fruit is quite ripe, and setting them in the fruit-room; but we cannot help thinking that such treatment must detract from the flavour of the fruit, without insuring their chance of keeping much longer than if they had been left in the pit till quite ripe. This is our experience at least, and we have kept Queens a month or six weeks, at midsummer, under the shade of the Peach-trees, in a cool house, after they have been perfectly ripened in the Pine-pit.

J. S.—WORTLEY.

Digitized by Google

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

LUCULIA GRATISSIMA.

WHAT a grand conservatory plant we have in this! It is not so often met with as it deserves; it should be in every collection of plants of any pretension. When the plant is well covered with bloom, the fragrance is very pleasant and greatly admired. It grows well in light turfy loam with a little silver-sand; if the loam is very strong and tenacious, the addition of a little peat is advantageous, making the compost more porous. To have it fine, it requires to be planted out along with Camellias; or it is also useful for covering a wall or any vacant space in a conservatory, giving the roots plenty of space to work in, when it will grow to a large plant in a short time. Particular attention should be paid to the drainage, whether in open border or pot. We often think there is not such importance attached to the drainage of pots as there ought to be; it holds a high place in the successful cultivation of all plants or fruits, whether out or in pots.

As the flowering season advances and blooms begin to open, a little weak manure-water occasionally will be found beneficial. When done blooming, withhold water to a great extent, but not causing the plant to suffer. If grown in a pot, remove it where it can have the benefit of the sun, to get the wood nicely ripened, which it will soon do by getting browned right up to the end of the shoots almost. At this stage it will be comparatively at rest, when it should be pruned pretty closely in.

Under ordinary circumstances it generally flowers in autumn. When the days begin to lengthen and the sun gains more power, give a good watering at the roots, with frequent syringing overhead daily, to induce it to break freely. When it has broken about half an inch, if in a pot let it have a shift if necessary, but let the drainage be looked at and put in good order whether it requires shifting or not, as inefficient drainage tells very soon on the health of the plant. Cuttings root easily in sand and a little leaf-soil in a gentle heat. A successful grower once told me he annually struck quantities under hand-glasses in the open garden.

RHYNCHOSPERMUM JASMINOIDES.

This is a real gem of easy culture; and where there is a great quantity of cut flowers required, large bunches of this are much liked, with the tips of some of the sweet-scented Geraniums, for filling the small glasses that are so much used for dinner-table decoration. If small healthy plants are procured now, and shifted on as the pots get full of roots, a large plant will soon be the result. In potting, use

Digitized by Google

equal parts of good turfy loam—sifting the fine out—and peat, nicely broken up with the hand, adding a little charcoal, from the size of pigeons' eggs down to the size of beans, with a good sprinkling of silver-sand. The pots should be quite clean (if not new), well drained, laying a little moss or rough turfy material over the crocks, to keep the compost from stopping the free passage of the water. If placed in a house with a temperature about 68° all through the summer, with moisture, giving daily syringings, it will make rapid growth and be a fine plant by the end of the season. After receiving the last shift, which should be into either 11 or 12 inch pots, a trellis should be placed over the pot, having previously fastened two pieces of lath across, about 1 inch square, on which to rest the trellis; also through which the shoots may be brought, so that at any future time the plant can be untied without injury. Training should be regularly attended to, so that none of the shoots get entwined round the wires.

By the end of September, if all has gone well, a good large plant will be the result of the season's attention. The temperature should be allowed to decline gradually, when it can be placed beside the hard-wooded plants for the winter months, where it should not be over-watered. If placed in a vinery about to be started the latter end of February or beginning of March, it will soon show signs of growth, when water should be given more plentifully; with the daily syringings and increasing heat, it will soon begin to show the bloom-buds. When about half expanded, if taken to a warm corner of the greenhouse, they will open and last much longer than if allowed to remain in the heat of the vinery, which by this time would be getting up to its summer temperature. The young tips are easily rooted in sand under a bell-glass, in a mild bottom-heat. There is a variegated-leaved variety that appears to be as free a grower; as to its flowering we cannot speak, as our plant is but lately received. The two would make fine climbing plants where there was space to plant them out. A. H.—T.

MAGGOT IN EARLY CAULIFLOWER.—Last year, when expecting some of our early Cauliflower to come in for use, many of them succumbed to the effects of Maggot. On some bright sunny days they flagged wholesale, never to rise again. We watered them with lime-water, but to no purpose. However, we were fortunate in having saved a good row of the batch at the top or wall side of the south border, where they were growing, not a plant of which fell. The plants which it contained were rather better than the others before they were planted out in spring, and a short time before that they were potted into 6-inch pots in a leaf-mouldy soil, and put under glass to get them well established in their pots before being planted out. I know of no other cause for their being saved from the ravages of the grub, excepting it was by the leaf-mouldy soil being round their root-stocks. R. M.

Digitized by Google

NOTES ON TRENCHING.

THERE are few vegetable cultivators who will not at once admit that trenching is an operation of great importance, and which in many places, from the pressure of other duties, is not so frequently practised as it would be in circumstances more favourable. It is especially beneficial in gardens which for a long period of time have undergone the routine which a regular supply of culinary produce involves. Numerous instances in our short experience have more than confirmed our belief in this respect. While our ideas are in favour of thorough and frequent trenching, we believe also that discrimination is necessary in operating on different soils. Where soil is very shallow, it would only, we think, be making matters worse to trench the same depth as in soil of an opposite character. It is, however, an excellent practice in shallow soils to incorporate with the subsoil in the bottom of each trench a liberal supply of old rotten compost, which, along with heavy mulchings in summer, will soon effect a decided addition to their depth. In regard to the effects of deep trenching of shallow soil, when contrasted with the same treatment of deep ground, I may mention results which came under my notice during the last summer. Before we entered upon our duties in the latter part of last spring, a portion of the garden had been trenched, we were informed, 18 inches deep, including some borders which till that time had been occupied principally with fruit-trees. A row of Parsley had been sown along the back of one of the borders, which in September measured on an average 3 feet across the row, in many places 3 feet 4 and even 6 inches, and 1 foot 2 inches high. I may mention here that no manure or other stimulant was given. We admit, however, that the produce was of a coarse quality when compared with what I transplanted and applied plenty of manure to. Turning to another part of the garden trenched the same depth and manured on the surface, a striking contrast is presented; with the exception of a line of Celery planted on 18 inches of manure, everything else was a complete failure. We believe the barrenness of the ground next the Celery resulted entirely from too much subsoil being brought up, aggravated by a deficiency of manure or old compost. Tripoli Onions are, however, at present looking well on the spot: this, I think, is attributable to the freshness of the soil affording no nourishment to worms and other vermin. When the Onions are transplanted, we intend to crop the ground with Celery, which will be as good a plan as any (owing to the quantity of manure required) of bringing it into good condition.

D. MACKIE.

Digitized by Google

CULTURE OF FERNS IN WARDIAN CASES.

Since the appearance of the last paper on this subject, I have received a letter from a friend, an amateur of much skill and enthusiasm, kindly giving me some notes from the experience of his daughter, who is a successful cultivator of Ferns in cases, and in other ways in rooms. My friend's remarks on the conditions that are essential to success are eminently practical and useful, and being the fruits of the experience of a young lady who is an adept in the art of cultivating Ferns, I am sure that lady-readers and beginners generally will benefit by and appreciate them. Adverting to the common practice of sprinkling daily over-head, and calling it watering, my friend says, "We never, when it can be avoided, water overhead, but always by capillary attraction from below; and this, with covered pans or cases, is quite often enough done once a fortnight or three weeks. The daily-sprinkling practice damps off the fronds and rots the crowns, but never reaches the roots, which are perennially dry under the delusive appearance of being comfortably moist, which the surface of the soil assumes under such treatment. The two points we think most important of all are plenty of water and *no stagnation*. We have not found one species suffer from the former, nor one that did not dwindle under the latter. Even soil and airing, provided the former is not actually sour (a condition it can only be brought to by stagnation), seem quite subordinate compared to these. Even such apparently drought-loving, wall-growing species as Ceterach and Wall-rue Spleenwort will bear any amount of water if it finds ready percolation through the soil, and such an apparent bog-lover as the Blechnum Spicant will, in artificial circumstances, dwindle at once when placed in stagnant soil." Speaking of soils, my friend concurs in my recommendation of good sound loam, and clinches the argument of the "leader" of last month, in favour of simple composts, in so far at least as it applies to Ferns. He says, "We began with the usual nostrums of the books—mixtures of peat, leaf-mould, silver-sand, loam, and even old manure—but gradually everything else has been eliminated save fibrous, turfy loam and white sand, rather in morsels from a Pea to a nut in size than crushed fine. Leaf-mould does fairly well in open hanging baskets, where there is thorough percolation and aeration, but in pots or pans no care will long prevent its souring."

Turning now to Warrington cases, it is only necessary to point out the differences of treatment that require to be observed in managing them, compared with that already described for Ward's cases. The circumstance that they are partly filled with water is the cause of any necessary difference in treatment. Greater atmospheric humidity

Digitized by Google

may be maintained in this kind of case, owing to the constant presence of water in its lower part. On this account it is a very suitable contrivance in which to cultivate that extremely interesting class commonly known as "Film Ferns," whose fronds are so transparent and delicate as to appear no more than a film when they are held between the eye and the light, in which position their simple internal structure is more clearly revealed to the naked eye than that of most other kinds of Ferns. I have seen very beautiful specimens of the Killarney and the Tunbridge Film-Ferns luxuriating and quite at home in these composite cases under good management in rooms; and though the New Zealand and Chilian species are rarely seen in the hands of amateurs, there is little doubt but that they would succeed quite as well as the indigenous kinds under the same circumstances. If these, then, are chosen for cultivation in the Warrington case—and I strongly recommend them, as the best adapted of all Ferns for its peculiar condition of atmosphere—the treatment must be adapted to them; and in some important respects it differs from that required by the majority of their kindred.

In respect of soil, these are fonder of peaty and very sandy open mixtures than the more vigorous kinds of Ferns, and are, if possible, more impatient of anything approaching stagnation. They cannot be overdone with moisture, provided the drainage is thorough and in good order; but in no case will they continue to do well if the freest percolation is not provided for. Roughly-broken fibrous peat two parts, and light sandy loam one part, with about half the mass of crushed sandstone and sand, suit the majority of them well. Others are fonder of clinging Moss-like to blocks and stumps of open porous absorbent stone or rough charcoal, than growing in any kind of compost.

Filled in part as these cases are with water, it is necessary to raise above its surface stations of some sort on which to plant the Ferns. These are provided in various ways; by means of stones arranged in imitation of natural rocks, in which crevices for the reception of the soil and the plants may be formed; and by earthenware baskets or pots suspended from the top of the case, or supported on suitable stands placed in the bottom, and rising above the surface of the water. Bracket-like baskets or pots for hanging from the sides of the case are also procurable, and suitable for the growth of these plants.

Film Ferns being natives of dank, dark, still nooks, where the rays of the sun never penetrate with force or directly, are necessarily very impatient of atmospheric dryness. They are more susceptible of injury from this cause than any other. On the proper management of the atmosphere, therefore, depends more than anything else success in growing them. They require to be kept more close than other kinds

Digitized by Google

of Ferns, yet not wholly without air, as is erroneously thought and practised by some; but dry air must be excluded to such an extent as will prevent the atmosphere of the case from being robbed of its moisture, else the plants will quickly suffer. For the same reason the sun should never be allowed to strike directly on the case: a few minutes' exposure to bright sunshine is often fatal to those delicate membranous Ferns. They require frequent sprinklings of the most vapoury description possible. Heavy syringings should never be indulged in, but dewings may be repeated several times a-day in bright drying weather, and once a-day when exposed to less light, and consequently a less active circulation of air. If the more commonly cultivated kinds of Ferns are chosen for the Warrington case, the treatment is the same as that of the Wardian case, with the single exception that the former will, owing to its greater humidity, require a more liberal system of airing, especially at low temperatures.

In making the following selections I have restricted myself to only the more beautiful or otherwise specially interesting and easily procured kinds, both indigenous and exotic. As to the means of procuring small Ferns, exotic species and varieties may be forwarded by parcels post, at a merely nominal expense and with perfect safety, by any nurseryman: indigenous kinds that are difficult to procure from their native habitats may also be got in the same way. But all true lovers of Ferns prefer having these latter of their own collecting—living memorials of pleasant rambles and happy holidays. To such, if they are dwellers in cities, a visit to a locality where the more beautiful and highly-prized kinds are to be found is a never-to-be-forgotten event. They enjoy as only city folks can enjoy the rural scene, the pure air, the singing of the birds, the wild-flowers, and, above all, the Ferns which drape the rocks and sylvan banks in inimitable elegance; and the little bits of the latter which they tenderly carry home with them, and as tenderly nurse and cultivate, recall pleasant memories of that delightful holiday time, and help to make more toilsome days enjoyable. But, unfortunately, nearly all of our rarer native Ferns inhabit spots celebrated for their natural beauty, or for their historical or poetical associations, which are therefore annually frequented by hundreds of tourists in these days of cheap and rapid locomotion. Perhaps not one in ten of these visitors have more love for the beautiful Ferns than for the soil in which they grow; but it is the fashion to have memorials of celebrated places that have been visited in the holidays, and, unfortunately for the poor Ferns which contribute so much to the charms of those places, it has become fashionable to carry them off bodily for the memorial purpose to such an extent that rare and local kinds are all but extirpated in some places in which they

Digitized by Google

were formerly plentiful, and in others they are totally so. And what is the fate of the unfortunate plants thus inconsiderately torn from their homes by people who know nothing about the treatment they require, and whose best reason for possessing themselves of them is, I fear, in many cases no better than the mere gratification of a passing whim? A few weeks at the most closes their miserable existence on being introduced to the unsuitable prisons and maltreatment provided for them by their no doubt well-meaning but incapable captors. Let me entreat all such to think what the deplorable results of their acts will be on the features of places they profess to venerate and desire to remember in their matured loveliness, and to consider whether a frond of the plant which your best skill will only enable you to keep alive for a week or two would not serve your purpose of a memorial as well, if not better, than the plant itself. In taking that, you at least leave the locality no poorer in its essential charms, nor lay yourself open to the censure of considerate and right-thinking people.

The following lists comprise some of the most beautiful and distinct of many hundreds of Ferns, exotic and British, adapted to cultivation in these cases, and in baskets; and all are easy to procure, either from nurserymen in the case of exotic, or from their habitats in the case of indigenous kinds. Figures follow the names of the exotics to indicate their height or the spread of their fronds, but they do not in all cases correctly represent their full natural development, but rather that which they usually attain in this way of cultivation. Nearly all the exotics are evergreens.

EXOTIC FERNS.

Acrophorus hispidus	6 to 12 in.	Lastrea hispida	12 inches.
Adiantum cuneatum	6 " 12 "	Lomaria blechnoides	10 "
" reniforme	4 " 8 "	" Germainii	9 "
Asplenium flabellifolium	12 " 18 "	" gibba	6 to 24 in.
" obtusilobum	6 inches.	Lygodium japonicum—climbing, indefinite.	
Blechnum occidentale	12 to 18 in.	Osmunda gracilis	9 to 24 in.
Campyloneuron repens	5 " 10 "	Pteris cretica	6 " 12 "
Cheilanthes argentea	6 inches.	" hastata	6 inches.
" fragrans	8 "	" scaberula	6 "
Cystopteris bulbifera	10 to 12 in.	" serrulata	6 to 12 in.
Davalia dissecta	12 " 24 "		
" parvula	5 inches.		

FILMY FERNS.

Trichomanes radicans.	Selaginella (Mosses) apus.
" reniforme.	" " denticulata.
" venosum.	" " helvetica.
Hymenophyllum ciliatum.	" " Martensii.
" tunbridgense.	

Digitized by Google

BRITISH FERNS.

Adiantum Capillus-Veneris—Maiden-hair.
Asplenium Trichomanes — Common Spleenwort.
" viride—Green do.
" Ruta-muraria—Wallrue do.
" Filix-fœmina—Lady do.
" Adiantum-nigrum — Black do.
" marinum—Sea do.
Allosorus crispus — Mountain Parsley Fern.
Ceterach officinarum—Scaly Ceterach.
Cystopteris fragilis—Bladder Fern.
Lastrea Filix-mas—Male Shield Fern.
" Thelypteris—Marsh do. do.
" Oreopteris—Mountain do. do.
Osmunda regalis—Royal Fern.
Polypodium Dryopteris—Oak Fern.
" Phegopteris—Beech do.
" cambricum—Welsh Polypody.
" alpestre—Alpine do.
Polystichum angulare.
" aculeatum—Bristle Fern.
" Lonchites—Holly Fern.
Scolopendrium vulgare—Hart's-tongue.
Woodsia ilvensis—Alpine Woodsia.

In the above list of indigenous Ferns only the types are named, but of nearly all there are less or more of curious and handsome varieties, more or less constant in character, in the hands of nurserymen. Of the Lady and Male Ferns, and Hart's-tongue in particular, there are many beautiful forms, but many also that are only cultivated because of their curious character.

CAMPYLOBOTRIS, GYMNOSTACHIUM, AND FITTONIA CULTURE.

I HAVE for some years given extra attention to the growing of these fine-foliaged plants. Their great beauty and usefulness will well repay any amount of labour bestowed on them. Very pretty! lovely! beautiful! are the exclamations of the ladies as they come round to where they are growing. Apart from their beauty as plants, I find their individual leaves extremely useful for decorative purposes. I have hitherto used them in flat dishes and for the bottoms of table decoration glasses. For flat dishes: first a layer or ground of Fern fronds or Lycopodium, then the leaves above them, with one or two flowers in the centre to hide the stalks and give a finish to the dish—a Camellia, Rose, or a Passion-flower, or any other similar bloom, being, I think, very suitable. For bottom-saucers of table-decoration glasses: Ferns or Lycopodium as before, then the leaves, a few sprigs of flower and a few points of Maiden-hair Fern. In both cases the effect is very pleasing and much admired by my employers. So much for their usefulness. I will now describe their culture as pursued by me. I keep the specimen plants in a glass frame inside of a plant-stove. The frame is set on a heated bed of sand. The plants are grown in zinc pans 6 inches deep and 18 inches wide, painted green outside. They are not plunged, merely set on the sand. I have one plant of each three years old—viz., Campylobotris regalis, Gymnostachium Verschaffeltii, and Fittonia Argyroneura. The plant of Campylobotris in the month of September would have measured fully 3 feet across had it

Digitized by Google

been sticked out, but there was only one stick to keep a shoot right in the centre. Since then I have taken a number of cuttings off the plant, "very large ones:" they are now rooted plants in 5-inch pots. The foliage was almost without a spot, excepting some of the under leaves. This plant delights in a close moist warm corner, but water must not fall on the leaves. I have grown it as an ordinary stove-plant, but certainly very far short of what it is in the glass case. There are other varieties of this plant very beautiful indeed: this one has always been my favourite, and I think it is the worst one to grow well, at least so far as my experience goes. The other two subjects are not so easily hurt with water, but they do not require very much in winter. These three plants are grown in one case and receive the same treatment, with the exception that water is not allowed to touch the foliage of the Campylobotris. The compost used is rough turfy peat two parts, a half turfy loam, a half leaf-mould, one silver-sand and some charcoal. In potting the plants, I put 2 or 3 inches of drainage in the bottom of the pans with a layer of moss or sphagnum over it, then I fill up with the compost as high as it will lie on. I have as yet only put in one plant of the Campylobotris, which had been grown for some time in a pot. After getting it nicely placed, the whole of the surface is covered with sphagnum, and the shoots pegged down on it, into which they root nicely: with the other two I put a number of rooted cuttings all over the mound, put on as much sphagnum as I can, give them a good watering, and into their quarters with them. I keep the lid of the case tilted more or less all the year round. I have and do still grow these plants among the ordinary stove-plants, but there is no comparison between them and their brethren in the case. J. HEATH.

WIRING OF FRUIT-WALLS.—In regard to the above subject, the conflicting opinions of your two correspondents in the February number of the 'Gardener' are in some degree fitted to perplex the minds of many whose advice might be required by their employers as to the prudence of adopting the system in erecting new walls, or wiring old ones, for fruit-growing purposes. The one appears to have no hesitation in saying everything in its favour, while the other denounces it as impracticable, except in warm situations. The former does not mention whether his situation is exposed or otherwise. We should be glad to hear if it is, and also to hear the testimony of any correspondent who has visited places of various exposures where the wiring system is adopted, and who has noted the uniform results, particularly in northern and late counties. Such information, I am sure, would be very gratifying to many, as well as myself, whose employers purpose building new walls. We have no doubt, as far as a commendable mode of training is concerned, that the wire system is much superior, but if in any case this should be at the sacrifice of a crop of fruit, or even one-third of a crop, better to abide by the old nail-and-shred system. D. MACKIE.

Digitized by Google

HINTS FOR AMATEURS.—MARCH.

WHATEVER remains unfinished in the fruit-garden, it should yet have attention if possible. Peaches off the walls to retard them may soon be fastened in their positions; if flower-buds are very thick on weakly trees, they should be thinned in time, otherwise a thin crop may be the result. It is not uncommon among practical men to say "they had abundance of buds, but they all dropped off." Wood crowded, and buds clustered all over without room to expand, are often the causes of this "dropping" evil. Where trees are at the mercy of frost and cold battering rains, it is difficult to secure a crop under such circumstances. In some early localities disbudding may require attention; it should be done gradually—though I confess to not being over-careful in this matter; but I begin as soon as the buds can be detected, and rub them off where I can, or nip them out among the fruit-buds with a sharp-pointed knife, clearing off many of the latter at the same time, leaving those best placed and strongest. This also applies to Apricots, Plums, and Morello Cherries, as well as Peaches; always leaving one or two good buds next the main branches, and one at top of each shoot to lead up the sap. Stopping the shoots and having a number of spurs fitting closely to the wall is a sure way of having plenty of fruit-buds; timely stopping strong shoots is necessary to keep the trees evenly balanced over the walls. Grafting may require attention soon. When stocks are large and grafts small, it may be difficult to get the barks to join; but when one side is nicely fitted, failure is rare. Heading down large trees (when the kinds are worthless) answers well for grafting useful kinds, whether Pears or Apples (Cherries and stone fruits in general are mostly budded); but if the trees are old and stunted, and their roots far from reach, it is a profitless operation grafting them. Gooseberry and Currant cuttings should be made (if not already done) about 15 inches long, topped with the knife, leaving three uppermost buds. Cutting clean off all other buds is the method usually adopted when preparing the cuttings; they will grow if they are stuck into any soil.

Lawns will now require attention. Where they are to be renewed it should not be delayed. Grass-seeds should be sown as formerly advised. In early localities the scythe or lawn-machine may have to be used; better to do it early and slightly than allow the grass to become rank and shave it close to the roots—drought in such cases makes sad havoc. Walks: turn or gravel them as may be necessary, roll and keep them level. Loose walks are unsightly, and very unpleasant to walk on; where there is sea-gravel only, it is hardly possible to have a fine, well-kept walk. Salting them to keep down weeds does not seem to be so common as it formerly was. There are some preparations used

Digitized by Google

more potent in the destruction of weeds than salt. Shrub-pruning may be done without delay. Thickets with a clipped-like appearance are not handsome. Ornamental shrubs and trees (unless used for covert) should stand singly, showing their outline; and where more than one top makes a start, the weakest and worst-placed ones should be cut off, and the best encouraged to keep the right position. Branches growing out of bounds and making the tree unshapely should be shortened back; nipping off small shoots with the knife is nearly as bad as clipping. The knife should be thrust well among the branches, thinning them to let in air. Most Evergreens, when they become naked underneath, may be cut well down, and a fine vigorous tree in a season or two will be the result. But to keep shrubberies and plantations in good order, they should have a part of them cut in annually. Planting of trees and shrubs may be done as early as possible. However, we often do much of it in April. Deciduous trees do well when planted as they are about to start into growth. Well-broken ground, secure fastening from wind, and a good mulching over their roots, are of primary importance when planting is performed.

Roses may be pruned any time this month. Cut out all weakly growths; regulate the shape of the plant. Cut Hybrid Perpetuals back more severely than the freer-growing kinds; but the system of cutting every shoot to one or two eyes is not the best for having a fine display of flowers; strong shoots pegged down regularly over the beds or borders make a grand display. Sow Sweet Peas in boxes or turf for planting out, and sow in the open ground, keeping a look-out for mice; red-lead annoys them when sprinkled over seeds. Herbaceous plants may be reduced and regulated, replanting with fresh soil if necessary. No bits of roots should be left in the ground. Where hardy annuals are to be grown, a sowing may be made of choice sorts. Those in pots should be hardened preparatory for planting out. All beds and borders of bulbs should have the surfaces stirred; wood-ashes or soot sprinkled among the plants will do much to keep slugs in check. It is now a good time to plant Gladiolus bulbs; but for late-flowering they may be retarded: a hamper with some leaf-mould placed in it (any soil may do), and the bulbs placed thickly over the surface, and planted when they become rooted, will keep them back; a cool shady position is necessary while they are in the hamper. Propagating may now be pushed forward with vigour, hardening forward stock. Potting off rooted cuttings, and making cuttings whenever they can be obtained, are some of the more important operations. Keep front lights close when winds are cold; this is even more necessary when hardy plants have been in heat. Flowers in pots are generally plentiful and choice this month; shading may have to be used. Rough plate-glass answers

Digitized by Google

well for flowering-plants, affording light enough, and no shading is necessary. Camellias, Epacris, Early Heaths, bulbs of sorts, Cytisus, Acacias, Violets, Lily of the Valley, Cinerarias, and all forced shrubs and Roses, are some of the more popular flowering-plants at this season. A house which can be well supplied with fresh air will suit them all, keeping any of the more tender things (especially if newly out of heat) in the least-exposed position. Water soft-wooded plants with clear manure-water. Bulbs and Cinerarias will take plenty when roots are abundant. Camellias are improved with supplies of clear manure-water, but to give it strong "sours" the soil, and does more harm than good: it is an evil to be guarded against to give any plant more stimulant than its roots can consume. Soot and guano make an excellent manure-water, given only strong enough to colour the water; and at each time, or every alternate time of watering, is the best system of applying it. Pots well drained and clean are of great importance. Clean, well-stirred surfaces do much to assist healthy growth. When potting is to be done, as a rule the best time is when the plants are starting into growth, especially when they have been cut back after flowering. Tying and training should have timely attention; but this is too often overdone, as it should always be borne in mind that staking should only be tolerated as a necessary evil; and when done, the stakes should be well hidden by the foliage. When will our greenhouse plants have the elegant appearance of our specimen Rhododendrons, Boxes, Portugal Laurels, &c., in the open ground? It is difficult to suggest what soils should be used for the various kinds of plants, but, as a rule, good peat, well mixed with loam, sand, and charcoal, suits many plants, such as Camellias, Acacias, Cytisus, &c. Plants such as Cinerarias, Calceolarias, and Pelargoniums do well in good turfy loam; if at all heavy, a little leaf-mould and sand will improve it. But great liberties may sometimes be taken when plants are vigorous, and the soil of a free healthy nature. When there is a difficulty with new plants, we examine the soil in which they are growing, and if they are doing well, we imitate it as closely as possible. Most kinds of stove-plants do well in loam, peat, and sand. Successions of forcing-plants are easily brought forward at this season. Roses are very liable to the attacks of grubs and green-fly. The buds dipped in Clark's insect-destroyer before they open are not then so liable to attacks of any vermin. Watering may still be done in the morning, except where heat is strong and drying. We cannot speak too strongly against surface-dribblings, which is the ruin of three-fourths of the plants that die "mysterious" deaths. Let window-boxes soon be got ready, washing and painting them if necessary. The plants for them should be well prepared by airing. M. T.

Digitized by Google

ANTHURIUM SCHERZERIANUM.

FOR the next few months this plant should be kept dormant by reducing the heat and water, but never allowing it to get dry. In spring, when, with the assistance of sun-heat, the temperature of the house can be kept up to a good heat with plenty of moisture, then shake them out, cutting off all the old dead leaves and decayed roots, clean the leaves, and give them a good syringing previous to potting. They like plenty of drainage, and rather large pots filled about half full of broken pots. The soil should be the best fibrous peat, having the dust sifted out of it, and mixed with plenty of broken bricks, or something of the kind, to keep it open. Giving plenty of heat and moisture, they will soon begin to root and flower. It is nearly always in flower, particularly in spring and summer. As it often makes roots near the crown, out from between the leaves, frequently add a little soil as a top-dressing to encourage those roots, and when well established give occasional waterings with liquid-manure water. In syringing the plant avoid syringing the flowers, as it may spoil them. When established with plenty heat they will stand almost any amount of water. A. B. T.

Jan. 10*th.*

THYRSACANTHUS RUTULENS. — This is one of the prettiest and most graceful stove flowering-plants for January. Year-olds, which I now wish to call attention to, make very useful plants for decoration—for a centre for dinner-table, perhaps, or other indoor purpose. If a batch of "tops" are put in this spring, they will, with ordinary care and stove heat, make very beautiful plants within twelve months. As soon as the cuttings are rooted, pot them off singly into 4-inch pots. They need only get one other shift into 6-inch pots, in which they will flower very satisfactorily. A soil that will suit this plant admirably well is one made up mostly of turfy friable loam, containing a slight mixture of leaf-mould, not too rotten, and some sand. They will thrive well if grown in an ordinary Melon-pit, near to the glass, all summer. Then they will require a good deal of water, and for that reason the pots should be well drained. They will also be benefited by weak liquid manure during their growing season. Some little industry will be required to keep the plants clean of scale and thrip; still they will repay any labour that may be bestowed on them when they flower. The leaves that they make later in the season should be secured, perfectly developed on the plants if possible, as they remain on the plants when they are in bloom. If the plants are grown in a pit, and taken to the stove at the earlier part of winter, they should then be allowed to have as much light as possible, as their racemes grow down, to insure a finer flower. When in full beauty, a nice yearling plant may be said to be about 18 inches high, bearing numerous drooping racemes of red-tubed flowers, some of which extend to several inches lower than the pot. R. M.

Digitized by Google

NOTES ON SUCCULENT PLANTS SUITABLE FOR OUTDOOR DECORATION.

Our former Notes have been principally confined to what may be termed the more common of what are called succulents. In now approaching the Agaves, Aloes, Gasterias, and Haworthias, we find still more remarkable examples of vegetation, which may well be enumerated among the most rare, curious, and interesting classes of plants, and which to many are comparatively unknown. Such may at first appear a bold assertion to those who have been for years accustomed to feast their eyes on the noble forms of the old Agave Americana, and A. Americana variegata, both of which are very useful, and by no means to be despised. Yet these are only the scattered representatives of the great genera. Now, however, it is fair to anticipate that all will soon be widely diffused and eagerly sought after on account of their interesting diverse capabilities, and solemn hemispheric-like structures of singularly rigid grandeur, yet so peculiar as to suggest the idea of some exquisite work of human art rather than that of any natural production. Irrespective of their being provided with the most wonderful gyrations with which any class of plants are endowed, and possessed of all the essential qualifications which add to the general display of the succulent beds in the flower-garden, they are well adapted to adorn lawns and terraces with prodigious isolated examples of strangely stiff forms, which produce a peculiar contrast to the surrounding objects, and a most remarkable feature in the landscape, still more so when furnishing the various summits of vases, buttresses, &c. For such purposes they are eminently adapted, from the impunity with which they withstand the most dreary vicissitudes of weather, from wildest storm of rain and wind to that of being roasted under a burning sun, without ever displacing a single leaf. Equally admissible are they in embellishing halls, staircases, corridors, and ornamental vases, indoors, during the winter months; which fact should not be the least of their recommendations, more especially when we take into consideration the detrimental effects produced on soft-foliaged plants in such situations during that season of the year. We know of no plants more favourably suited to gratify amateurs in cottage windows, &c.; as, when once established in their pots, they grow well without shifting for years, and will not feel nor show the least neglected, if left unattended for weeks. But to our brief enumeration. *Agave Salmiana.* This bold, highly characteristic example more resembles some huge casting of bronze than vegetation, producing its large sable leaves on a ponderous base of the same solemn hue. *A. stricta*, one of the grandest, with numerous stems supporting nice heads of dark-green leaves, centred with a sharp line of yellowish white; the whole belted with a most delicious band of pure white. *A. Thompsoniana*, a very beautiful species, with magnificent head of lanceolate, deeply-concaved, delicately-serrated, pale-green leaves. *A. pugioniformis* is a unique-looking object, with long sword-shaped pleasing green leaves margined with long ivory white spines. *A. scabra*, a very useful low-growing species, with broad green leaves, each terminating in a dark burnished spiny point. *A. dasylinoides*, large cast-like footstalk, producing immense graceful green gladiate leaves. *A. ferox*, a most desirable handsome species, with remarkably fine blackish peculiar drooping leaves, sparingly edged with teeth. *A. Jacquiniana* is one of the finest of the dark bronzy kinds, which attains a most astounding size, with long, rigid, lanceolate leaves, thickly armed with black glistening thorns.

Digitized by Google

A. Karatto is another of stately growth, with broad, oval-lanceolate, concaved, glossy-green leaves, very beautifully and thickly serrated. *A. striata* is very distinct from many, forming a very large hemispheric base, densly studded with long, ascending, narrow, green leaves, marked with delicate streaks. *A. Appalanata*, rigid old-fashioned stems, exquisitely adorned with short, stout, sharp-pointed, pale-green leaves. *A. Ghiesbrechtii*, a noble species of imposing dimensions, with majestic head of stately green leaves, highly ornamented with margins of curious falciform spines, and the surface of the leaves elegantly impressed with mysterious markings of the same form. *A. Americana striata*, strikingly effective, with beautiful longitudinal lines of bright orange and green extending the entire length of its thick fleshy leaves. *A. heteracantha*, a real novelty, with long, slender, splendid, olive-green leaves deeply concaved, and beautifully margined with a small conspicuous line of pure white. *A. Celisana*, fine broad glaucous leaves, edged with numerous sharp spines. *A. picta*, graceful broad leaves, with cheerful green centre, belted with a band of silvery white. *A. filifera* is one of the most elegant, with a massive head of sharp lanceolate leaves, charmingly furnished throughout with delicate pure white hairs, which harmonise well with the glossy green foliage. *A. yuccæfolia*, forms a graceful object, with fine drooping silvery foliage. *A. univittata*, longish footstalk, adorned with a dense covering of effective green leaves. *A. potatorum*, vigorous thick base, with attractive, tapering, dark-bronzy leaves, thickly margined with black glittering spines. *A. glaucescens* differs entirely from all the other species, with a long, perpendicular, woody stem from 3 to 6 feet in height, terminating in a noble head of rich, smooth, glaucous leaves. *A. horrida*, a dwarf-growing species, with fine, broad, oval-lanceolate, bright-green leaves, rigidly margined with brown chestnut-coloured horny spines. To these may be added as closely allied—*Fourcroya geminispina* with its large imposing structure of rigid, upright, long, shining, green leaves; additionally ornamented with deeply-indented margins. *F. longæva*—thick footstalk, supporting a monstrous head of magnificent, drooping, sea-green leaves. Very rarely, indeed, is seed of these attainable, therefore propagation from suckers is generally resorted to. They are produced freely around the base of established plants, and should be taken off carefully, and potted singly into any rough light sandy soil; then placed in rather a dry atmosphere, with a temperature of 50° to 55°, where they root rapidly, and soon make fine plants to shift, and grow on in a compost of sandy loam, peat, and broken bricks.

The genus Agave and that of the Aloe are often regarded as one by those unacquainted with them. But the last-named differs in many respects from the first, and are easily distinguished by their long gleaming stems, which range from 2 inches to 10 and 12 feet, each surmounted by stately heads of majestic leaves, boldly armed in all directions with strange, falcated, rigid, abruptly-reflexing, and pointed, unearthly-like protuberances; often producing immense, glittering, pyramidal peduncles, exquisitely clothed with various-coloured—yellow, pink, green, and pure white—bell-shaped flowers. *Aloe arborescens* is one of the most useful of the green ones, with very distinct, narrow, drooping foliage, sparingly toothed. *A. albocincta* proves a very interesting species, the leaves being opposite, of a soft glaucous hue, with delicate, perceptible, longitudinal, straw-coloured striations, finished with an exquisite white margin. *A. distans*, long stems, sparingly clothed with curious, falcated, deep-green leaves, thickly edged with white spines. *A. grandidentata*, large, fleshy, somewhat concaved, graceful green leaves, beautifully margined with pure-white spots. *A. ferox* is a very handsome plant, with broad, oval-lanceolate, dark-

Digitized by Google

green leaves; their whole surface densely studded with bright, horny spines. *A. glauca*, a very elegant, compact grower, with small sharp-pointed leaves, enveloped in a soft powdery coat. *A. mitræformis*, long ornamental stems, producing heads of rigid, jagged, green leaves. *A. serrulata* is a very pretty example, with neat green leaves, the whole ornamented in a beautiful manner with clear white spots. *A. spicata*, an exceedingly valuable, highly ornamental species, with a stiff pedestal, supporting a remarkably handsome head of lusty green leaves, which forms a conspicuous ground-colour to the many irregular blotches of yellowish white. *A. prolifera*, very graceful head of a light-blue tint. *A. saponaria*, fine massive head of light-green horny appendages, beautifully enlivened with white spots. *A. umbellata*, vigorous spreading foliage, which shows to advantage its beautiful longitudinal lines of white and green. *A. latifolia*, straight stems, surmounted with a luxurious head of finely-formed green leaves, with grey markings. *A. spinulosa*, long stem, with an imposing head of deep glaucous leaves, singularly marked with little white excrescences. *A. longaristata*, rather long acuminated rosettes of green leaves, covered with peculiar white spines, which impart to it a delicate variegated appearance. *A. purpurescens*, numerous stems, ending in noble heads of robust dark-green leaves, finely toothed. *A. variegata* is regarded as the finest in habit and markings of all the Aloes, with rigid, slightly-reflexing, lanceolate, deeply-concaved leaves, most bewitchingly striped with alternate markings of green and silvery grey, each leaf terminating in a long, silvery, pointed spine; the whole of a chaste triangular outline. These are increased and succeed well under the same treatment as the Agaves. Also from well-ripened seed, when sown in a nice sweet mixture of loam and silver-sand, and placed in a temperature of 60°, where it germinates quickly, and soon produces fine plants.

The genus Gasteria contains many interesting species, dwarf, stemless, and low-growing, composed of fat, succulent, ovate-lanceolate, and subulated tongue-shaped leaves, richly impressed with various-coloured reticulations, and numerous singular wart-like prominences. *Gasteria maculata*, finely developed, elegant, dark-green leaves, prominently marked with lustrous silvery spots. *G. lævis*, vigorous habit, with beautiful, opposite, dark olive-green leaves, exquisitely marked with frosty silvery specks, margined with a magnificent, reddish-crimson, transparent-like band. *G. læte-punctata*, strangely-twisted, irregularly-set, sharp-pointed green leaves; strikingly marked with splashes of creamy-white. *G. brachylla* possesses a most compact stout structure of very dark leaves. *G. pulchra*, one of the grandest, with bold, erect, pale-green leaves, so profusely infused with pure-white reticulations as to resemble a small refulgent statue of polished marble. *G. conspicuata* produces very pretty, hazy-green leaves, indistinctly marked with patches of yellow. *G. bicolor*, fine oval, opposite, close-set, delicate green-and-white leaves, disposed in the shape of a spreading fan. *G. candicans* attains a larger size than many, with a peculiar whitish head of long curious leaves, pointing in all directions. *G. panthemensis*, stiffly armed with beautiful, sharp, coppery-coloured leaves, exquisitely relieved with many small white excrescences. *G. undata*, oval green leaves, beautifully mottled with white. *G. verrucosa* is one of the commonest, of vigorous habit, and sharp-pointed, olive-green leaves, thickly covered with small, white, warty eruptions. *G. subnigricans* is one of the most beautiful, with solemn, blackish, thick, oval leaves, deliciously suffused with white and yellow spots. *G. spiralis*, singular form of fine, short, fat leaves, with distinct green and white blotches. *G. glabra* appears almost hideous at first sight, in its tumultuous, clumsy, distorted aspect, which on close inspection proves of great

Digitized by Google

interest; the leaves being of a singular triangular outline, elegantly marked with small white dots. *G. brachyphylla*, long, attractive, curious, gladiate, dark glossy-green leaves, enlivened with splashes of white. *G. Bowieana* is one of the most useful, with massive, oblong, glossy black leaves, which form a very definite ground-colour to the prominent white reticulations.

The genera Haworthia comprise numerous striking and interesting objects, principally low-growing prostrate rosettes of gorgeous, reticulated, and elegant translucent leaves. *Haworthia mucronata*, exceedingly handsome, tiny rosettes of very small, sharp-pointed, bright, cheerful, green leaves. *H. Reinwarti*, dwarf stems, densely covered with curious dark claw-shaped leaves, lying close to the stem, and charmingly covered with little white dots. *H. parva* and *H. tessellata* are both little gems, of spreading triangular form, each leaf exposing a beautiful flat surface of dark velvety ground-colour, distinctly marked into numerous little squares by longitudinal veins of bright silver, connected together with transverse reticulations, which give them a striking resemblance to some of the beautiful Anœctochiles. *H. arachnoides*, very elegant accumulated rosettes of light-green leaves, fringed with a quantity of strangely interwoven white teeth, which produce a curious complicated appearance. *H. setata*, graceful light-green rosettes, exquisitely edged with white hairs. *H. cuspidata*, small low-growing rosettes of thick variegated leaves. *H. cymbiformis*, dainty rosettes, slightly striped. *H. margaritifera*, long, slender, brown leaves, dotted with very pretty whitish spots. *H. planifolia* is rather tender, and one of the finest, with very small, fat, rich green rosettes, of a beautiful pellucid tone, and marked with light-yellow tracery. *H. rigida* is a very useful kind, with long stems, clothed with curious, short, rough, prosaic, green leaves. *H. subattenuata*, short stems, and many small green leaves, beautifully marked with white dots, *H. coarctata*, similar in habit, with numerous small ascending falcula-shaped leaves. *H. papillosa*, dwarf stems, with an elegant head of oblong green leaves. dotted with many raised sparkling silvery spots. *H. granata*, purplish leaves, covered with large glistering specks. As an included section to these, the Apicras offers a contrast and telling effect in choice combinations, being of dwarf growth, from 12 to 18 inches in height, with a very rough imbricated texture, resembling a small limb amputated from the common Chili Pine (Araucaria imbricata). *Apicra imbricata* has the real character of it, densely clothed with the same dark-green, spiny, concave, indented leaves. *A. foliolosa*, a real curiosity, quite round, and no thicker than a man's finger, smothered in a dense coating of small acute leaves. *A. congesta*.—I have not heard lately of Mr Fowler's anticipated acquisition in the produce of the variegated Araucaria. A small counterfeit representative is found in the last-named remarkable production, with beautiful shining green leaves, elegantly marked and variegated with small white spots, which give it a very effective and striking appearance. Gasterias and Haworthias do not generally produce enough of suckers for rapid increase; but they are easily propagated from seed, which germinates freely when sown in a very light compost, and placed in a temperature of 60°. If sown rather thinly it prevents much damping while in their young state, when a little care is necessary in pricking them into pans, there to remain till fit for shifting singly into small pots, when they do well if placed in a warm dry frame fully exposed to the sun, and almost dust-dry in winter.

As before stated, when plants are once established no repotting is necessary for many years. But such frugal results can only be secured throughout by the use of good substantial sandy loam, with a sprinkling of peat and broken bricks to keep it porous. The whole genera are most averse to rank manures,

Digitized by Google

which by all means should be avoided, especially such indiscriminate mixtures as those denounced in the leader of last month, though in such promiscuous composts they will keep fresh, and even seem vigorous and healthy *for a time*, but the over-fostered giant will soon languish and die. Many of the above-named plants are often regarded and treated as confined inmates of the intermediate house, but all are much benefited by a sojourn outside in summer.

The following list includes a choice and useful selection :—

Agave attenuata.
" Besseiana.
" coccinea.
" densiflora.
" ellemetiana.
" fouzerouga.
" gigantea.
" ixtioides.
" lophantha.
" lurida.
" mexicana.
" Nulerii.
" plicatilis.
" rupicola.
" Schidigera.
" Sandersii.
" virginica.
" Verschaffeltii.
" xylonacantha.
Aloe africana.
" brevifolia.
" consobrina.
" depressa.
" echinata.
" frutescens.
" gracilis.
" lineata.
" nobilis.
" obscura.
" puridens.
" Salmdyckana.
" supralœvis.
" soccotrina.
" tenuior.
" vulgaris.
Apicra asperula.
" bullulata.
Apicra pentagona.
" rigida.
" spirella.
Fourcroya gigantea.
" interrupta.
" selloa.
Gasteria angustifolia.
" Bayfieldii.
" carinata.
" disticha.
" excavata.
" intermedia.
" linita.
" nitida.
" oblidua.
" pluripunctata.
" rotata.
" scabereima.
Haworthia atrovirens.
" altilinea.
" cordata.
" concava.
" chloracantha.
" denticulata.
" expansa.
" indurata.
" imbricata.
" latevirens.
" mirabilis.
" pumila.
" pentagona.
" rugosa.
" radula.
" subulata.
" tortuosa.
" turgida.
" virescens. J. H.

(To be continued.)

HELIOTROPE FOR WINTER FLOWERING.—Where cut-flowers are in great demand during the winter, I know of no plant that would be more serviceable than the above, especially where the means are limited for growing other things. But to have it in quantity it requires to be planted out, the blooms also coming much finer. We have here an old plant growing against the back wall of a cool vinery (the wall, of course, being very little used for anything else) that gives a good supply of flowers all through the winter, which amply repays for the little trouble bestowed upon it—which is simply by keeping the shoots pinched back during the summer, and tying in others to fill up vacant spaces. The Heliotrope, when grown in pots, is, generally speaking, infested with red-spider; but I have never seen the slightest traces of that insect upon the plant in question. HENRY MASON.

BISBROOK HALL, UPPINGHAM.

Digitized by Google

FLOWERING THE ALLAMANDA CATHARTICA.

SEEING in your October number a correspondent was not satisfied with the flowering of the above Allamanda, I beg to offer a few remarks on the subject, as I am never disappointed in their flowering, though sometimes disappointed in getting them into flower at a given time; but this I have overcome. The Allamanda strikes freely from cuttings in sandy soil with strong bottom-heat, and in bottles with a little water and charcoal-dust without bottom-heat. When struck, pot them, never allowing the young plants to get pot-bound. The best soil to grow them in is equal parts of fresh turfy loam, peat, charcoal, and half-inch bones, with a free admixture of silver-sand, all well mixed together; always keeping in mind to make the drainage good—this is one of the keys to the successful flowering of the Allamanda. I never allow my young plants to go to rest until I get them the size desired—say, covering a trellis 5 feet high by 3 feet, though this can be accomplished within two years if proper attention be paid to poting, watering, &c. I have found liquid manure made of fresh cow-manure the very best and safest, which you may use two or three times weekly. When at the desired size, gradually withhold water, keeping a brisk heat up to get the wood well ripened: finally, withholding for a time water altogether, put the plants away to the cold end of the stove, or any light dry place where the temperature does not fall below freezing-point; but to keep them in a temperature of from 40° to 50° I think is better. Then if you want them to bloom in July, bring them forward in the end of December or first of January, loose all off the trellises, prune or cut back all the weak unripened wood to the strong well-ripened. Look to your drainage—make it good. Should the ball be very much matted, loosen it a little. It will require a pot a size larger, using this time rather lighter soil—viz., bog-earth, leaf-mould, charcoal, and sand, with small bones, keeping in mind to make the drainage good. I make it a rule with large pot-plants to put the crocks in singly with the hand, placing some spagnum over all. I do not make the soil very firm when potting. Then introduce them to the warm end of the stove, or into bottom-heat. Sprinkle all over with milk-warm water. Be very careful in watering until they break, then increase the water accordingly. You must not tie the shoots in; let them have all their own way, unless any one seems to be over-gross, which tie down to the trellis, keeping them near the glass, and to get the shoots all equalised; then stop them or pinch the eye out of each shoot from seven to eight weeks before you want them in full bloom. After this stopping, rather withhold water, and encourage the plants to make short, stiff, close-jointed wood, giving liquid manure twice a-week, or three times when the plants show bloom. Lay in or distribute the flowering-shoots equally all over the trellis: this done, when in bloom they will go on doing so well in a warm, rather shaded conservatory for at least four months. The best three distinct varieties of Allamanda are the following:—viz., for A. Cathartica try A. Hendersonii; A. Nobilis, a fine free-flowering variety, an improvement on A. Schottii—not so much for size of bloom, but with more substance, not so flabby in the petals, and of a rich golden yellow; A. Grandiflora, a fine variety, having a fine bold lemon flower. These three are decidedly the best, but if any wanted a fourth, they should have A. Schottii.

JOHN T. BURNS.

MIDDLESBOROUGH-ON-TEES, YORKSHIRE.
Nov. 14th.

Digitized by Google

AMERICAN EXTRAORDINARY VINE-GROWING UNDER VIOLET-COLOURED GLASS.

HORTICULTURISTS should always welcome and hail with something like gratitude all the substantial aid extended to them by their more purely scientific co-workers. A practice that is not more or less founded on and guided by physiological and scientific principles is not worthy of being dignified by any other name than "rule-of-thumb work." By all means hold in veneration that success which is the result of long practical experience, painstaking and careful observation. These faculties have done much—perhaps most of all—for horticulture; but their steps would have been much more certain, less frequently in the dark, and at an accelerated pace in progress, had they been guided by the established facts of physiology and other departments of science bearing upon horticulture. It is to be feared that there has been too much disregard hitherto, on the part of practical men, of the lucubrations of men of science—and too much contempt on the part of the often would-be scientific towards practical men. We should, however, say, that the most practical man of all is he who lays hold of any helping or guiding hand held out by the man of science; and the latter class more scientific, for regarding the tests which practice alone can establish. And it would be well if both remembered that a good spirit towards each other is one of the greatest helps in the search after truth. Those who think that all wisdom dwells with themselves alone, have generally a mind too little to contain much of it. The clearest-sighted men of science get into a mental fog sometimes, and make very comical displays, especially when they step out of their own sphere into the minute details of a practice, the threshold of which they have never crossed; and suggest the comparison of a man attempting to write his own history before he has lived his life, or of Egyptian brickmakers floundering in mud without straw.

These reflections have been suggested to us by the immense sensation which a General Pleasanton, in the United States of America, has been creating among our worthy cousins, and partly among ourselves, by an experiment of growing Vines under blue or violet-coloured glass. We owe Brother Jonathan much in the way of invention and discovery, and therefore would be prepared to know that even in Vine-growing, British horticulturists are likely to profit by his science and practice in that avocation. The experiment is, perhaps, somewhat startling in its results at first sight, especially to those who have had next to no practice, or are not intimately conversant with what experienced men are doing all over the country; but the results of this experiment, like many other things, become much more common on closer contact, and by comparison with British Vine-growing. Therefore the assumption that bluish rays of light are more favourable to Vine-growing calls for a little consideration.

The gallant General has published a pamphlet, in which are detailed the experiment, and its effects, or supposed effects, on the growth of the Vine. He erected a span-roofed vinery, 84 feet long, 26 feet wide, and 16 feet high, partially glazed it on both sides with violet-coloured glass, so as to subject the Vines to a bluish light, and made the Vine-border 3½ feet deep, and planted his Vines—twenty varieties—in April. *Some* of them grew to the length of 45 feet the same summer, and measured 1 inch diameter 1 foot from the ground. This growth, considered to be the result of the blue light (?), has apparently stunned American horticulturists; from which fact, many will agree with us, it is to be inferred that Vine-growing under glass in America is far in the rear of what has been attained

Digitized by Google

under the much colder and gloomier summers of Britain. We are still further strengthened in this inference by the character of the Vines chosen for comparison with those grown in what we shall term the blue vinery, and which had been planted at the same time, and treated, we of course naturally suppose, the same, minus the blue glass. These only grew to the length of 5 feet, and made next to no increase in girth!!! Surely this is one of the most grotesque and outrageous comparisons, and the most extravagant that unfairness, so far as the establishment of a scientific fact is concerned, could possibly select. It suggests the idea of comparing the roaring Niagara in full flood with the tiny rill that a summer's sun has dried up, so that a child could paddle in it; or the great American giant with Tom Thumb, instead of with men of ordinary stature. In this country Vines that only grow 5 feet the first season must be regarded as an utter failure—a season's growth lost. This, and the whole account of these Vines, is droll, and seems clouded with inaccuracy. For instance, we are told that it was necessary to attend to the blue vinery monsters every day, to tie growths which did not exist the day before! We wonder if they existed the week before!! Who ever heard of a set of young Vines, planted in so large a vinery, and growing at the rate that experienced men expect them to grow, that did not have growths existing, and in need of tying, that did not exist, nor need to be tied, the previous day!!

But let the dimensions of these blue vinery growths be examined more closely. They made a growth 45 feet long and 1 inch diameter at their thickest part. Well, we have known young Vines planted in April no thicker than a quill make 200 feet of growth, that is 10 rods, each 20 feet long, and measure in autumn, after undergoing the shrinking of the ripening process, 1¼ inch in diameter 1 foot from the ground. In 1870 we saw a similar set of Vines planted in April which made 3 and 4 rods each 26 feet long, and as thick as a man's finger, and measure over 1¼ inch in diameter at 1 foot from the ground. And we have known Vines struck from eyes and grown to equal dimensions the same season. Many who are conversant with the capabilities of the Vine could no doubt point to like if not greater results, not a few. So that in mere dimensions of growth, the gallant General's experiment has not resulted in anything wonderful, especially with Vines in so large a house, with so deep a border, and under the stimulating influence of an American sun. As for the grotesque comparison with the 5-feet abortions, one can only smile at that part of the evidence.

But the Vines in General Pleasanton's blue vinery were fruited the year after being planted; and we are informed, on what does not appear to be better authority than the mere "guess" of a nurseryman, that the weight of the crop was about 1200 lb., which certainly must be regarded as a heavy burden, and an injudicious one for the first. And this result is also magnified, like the growth of the first season, by a still more grotesque comparison—namely, that it takes from five to six years in Britain to get Vines to bear their *first small bunch!* If all else be on a par with this, the said pamphleteer has much to learn besides the science of Vine-growing. When a case looks weak or less strong the closer it is viewed, it is not a very favourable sign for it; and this, we think, applies even to the weight of crop the first year. Assuming that the guess—unlike most other guesses under similar circumstances—is correct, this 1200 lb. weight of Grapes does not appear so prodigious after all. Let us suppose that the span-roofed vinery has a side-light 2½ feet high, and a 20 feet rafter on each side, this gives us 45 feet of glass by 84 feet in length, equal to a surface of 3780 square feet, which, at the estimated weight of 1200 lb., shows something less than ⅓ lb. to every square foot. Now in ordinary cropping, 1 lb. to the square

Digitized by Google

foot is a moderate crop for established Vines. Or let it be calculated another way: say that a Vine were planted every 2½ feet on each side of the house; this would give sixty-six Vines bearing something less than 20 lb. each. Now we have not the slightest hesitation in saying that plenty of Vines have been grown in this country that have borne far heavier crops in proportion to the surface occupied by them. A pot-Vine struck from an eye and grown in a 12-inch pot is not considered much of a success unless it be made to bear 8 to 10 lb. on a 6-feet cane; how much more, then, does a cane twice that length and thickness in a deep border bear, when expediency calls for them being cropped that length? We have frequently met with Vines struck from eyes planted the same season, and carrying 12 and 14 bunches on 12-feet rods the following year. We are now referring to temporary Vines, so that, viewed from this point, the result of General Pleasanton's blue-light experiment is not so wonderful after all, even admitting the crop to be correctly "guessed." But the climax is yet to be told. The third year of their growth, the crop on these Vines of the General's is estimated to have been 2 tons, or something more than 2½ lb. to every 2 square feet of surface;—a weight not at all beyond conception in the case of any good Grape-grower who wishes injudiciously to tax the powers of his Vines the third year. But we trust the estimate is nearer the mark than was the Ohio farmer's, who got an approximate estimate of the number of cows in his dairy by calculating from the fact that his seven saw-mills were driven by the butter-milk!!

Judged by the results of British Vine-growing under clear glass, the results of this experiment are not quite satisfactory. And we are strengthened in our inclination to regard it in that light from the fact, that the most modern investigations conducted by scientific men prove that violet or bluish rays of light are less favourable and stimulating to vegetation than those admitted by ordinary glass. We can, however, conceive that under an American sky and sun much more air must be required, in safely conducting the growth of young Vines, than is necessary here, and that the partial shade afforded by the violet glass enabled the cultivator to maintain an atmosphere in the height of an American summer in this large vinery more favourable to the vigorous development of Vines. But a piece of hexagon netting or tiffany would have had that effect; and for anything taught us yet by this experiment we say, give us clear glass and a blue sky, as being more in accordance with nature and the home of the Vine; and something more conclusive in the way of experiment is needed than General Pleasanton's to establish the conclusion that a blue shade is more favourable than any other slight shade over a vinery under the rays of an American sun.

ON WIRING GARDEN-WALLS.—Like Mr Dawson, I tried the plan of covering walls with galvanised netting, using the diagonal wire sheep-net; and admirably it answers, especially for fan-trained trees. But there is one objection, the young wood is very apt to grow behind the wire; and, once there, it is removed with difficulty, if at all. I know it should not be allowed to go there, but it requires an Argus to prevent it. On the whole, I prefer the French plan of single wires 4 inches apart, from beneath which a truant shoot can almost always be easily brought back. C. C. E.

Digitized by Google

NOTES ON BEDDING-PLANTS.

BY the time this appears, I daresay that most gardeners will have got their Geraniums potted off. If any have still got them to pot, no time should now be lost in having them off hands. They should, if possible, be kept in a warm house for a time after potting, until they get established, giving them a dewing with the syringe on the evenings of bright days. It is essentially necessary to make sure of having them thoroughly watered the first time after potting; if they be merely subjected to a series of surface sprinklings, it is difficult to get them thoroughly watered afterwards.

Calceolarias must also receive attention now by being pricked out into cold frames, at about 4 inches apart. They always do better thus than being cramped up in pots. About equal parts of common garden soil—loam, if to spare, will of course be better—leaf-mould, and sand, makes a good compost for them. They should be kept moderately close for a short time, until they begin to grow, watered thoroughly, and protected at night with mats until safe from frost. Keep pinching out the points as they grow, so as to make them dwarf and stubby, and give abundance of air on all favourable occasions; the lights should be removed altogether on good days.

Verbenas: the first batches of these will now be pretty well established in the boxes or pans into which they have been pricked out. As soon as they are sufficiently hardened, they will be much benefited by being pricked out into cold frames, or pits, in a mixture of fresh loamy soil, leaf-mould, and sufficient sand to keep it nice and open. Prick them in at about 3 inches apart; water with tepid water; keep close and shaded for a few days until they get established, after which shading may be dispensed with. It will be necessary to protect at night. An occasional dewing with the syringe will be of benefit to them. Keep them well pinched so as to make a good foundation before bedding-time. Keep a sharp look-out after green-fly, and fumigate immediately it is observed: should mildew make its appearance, dust with sulphur. Some varieties are especially liable to its attacks, such as Purple King, and most of the white kinds.

When the stock of Verbena venosa is raised from seed, it should be sown at once if not done. It often takes a long time to vegetate, whilst sometimes it comes away freely enough. It propagates readily from the roots if they be laid thickly in boxes, and put into a warm place. When they have grown about an inch, take them off with a bit of root adhering to each, and prick them into boxes or pots, keeping them in heat until established, after which they may be hardened off in cold frames. It is a first-rate thing, and should be in every garden.

Digitized by Google

Lobelia speciosa and Perilla Nankinensis must be sown very soon. We think it is better not to have these things so far forward at planting-time as is often the case; better have nice healthy-growing plants than having them for several weeks standing about in boxes until they are so wiry and stunted in growth, and their roots so matted together, that it is impossible to tear them asunder without the roots sustaining serious injury. As soon as the young seedlings are fit to handle, prick them out *singly* in boxes at 1½ inch apart (the Perilla somewhat wider apart). Keep them in heat and shaded from bright sunshine till they are growing nicely, when the shading may be discontinued.

Tagetes signata pumila and Pyrethrum Golden Feather will do well transplanted from the seed-pans into cold frames, in some nice light soil: keep the frames rather close for a time, and shade from sun until they are growing nicely. It will be necessary to protect at night, especially the Tagetes.

Continue to put in cuttings of Tropæolum Cooperii and Ageratum Imperial dwarf. Both are indispensable for small beds, and for edgings to large beds. As they will be amongst the last things planted out, propagation of them may be continued a long time yet.

The best beds of Ageratum we have seen were not planted till July. It is a wonderful thing to bloom, and is perhaps the best bedding-plant of late introduction. Stocks, Asters, Everlastings, and Ornamental Grasses, may be sown about the middle of the month, either in frames, hand-lights, or boxes. Zinnia elegans and Rhodanthe should be sown in boxes, and kept in gentle heat, as they are more tender than most of the others.

Polemonium cæruleum variegatum may be divided now. Pot the divisions separately in 3-inch pots, and put them in a cold frame, keeping it close until they start into growth, when they may have abundance of air. Dactylis variegata may also be divided now, and either pricked into frames, to start afresh, or it may be deferred until about the end of the month, and then planted at once into its permanent quarters, reserving a little in stock to make up any deficencies which may occur.

Bedding Pansies may now be planted out, at any time, as likewise Carnations, Picotees, and Hollyhocks. Keep shifting Humea elegans into larger pots as they require it; if left until they get pot-bound, they may lose their under leaves, besides being more liable to the attacks of green-fly.

Where Violets require replanting, they should be attended to soon. Dahlias may be put in a place to start about the end of the month. They will do very well packed among leaf-soil, in boxes, or even laid on the border and covered over with leaf-mould, in a Vinery or

Digitized by Google

Peach-house at work. When they have made two or three inches of growth divide them with a knife, leaving a piece of tuber attached to each shoot, and pot them singly in 4-inch pots. They should be kept in a moderately warm place until they get started, when they may be put into a cold frame and protected at night until all danger from frost be past.

Where Cannas are used for bedding purposes, they also may be started now, or soon. They may be treated in all respects like Dahlias. J. G.

FOLIAGE-PLANTS FOR TABLE DECORATION.

ANNASSA STATIVA VARIEGATA, CROTON ANGUSTIFOLIUM, BREXIA SPINOSA.

SOME people do not care much for foliage-plants on the dinner-table, thinking they look dull for the want of flowers, but to my mind nothing looks better than well-grown plants of the above kinds. I always grow my plants in pots of a size to drop into my fancy ones for the table, then I cover the surface (after they are in the fancy pots or pans) always with either silver-sand or growing Selaginella denticulata.

Annassa Stativa Variegata, or Variegated Pine, is a plant we constantly use on the table here. It is light and elegant-looking, and will stand keeping in a room for a long time. We grow ours in a mixture of loam, peat, manure, and leaf-mould, with a little silver-sand, and always keep them close to the glass and in the full light of the sun, as that is the great secret of getting them up to a good colour. They are propagated by cuttings taken off the crown; let them lie and dry for a day or two, and then put them into a good heat, and they will soon strike, and you will have a succession of young plants.

Croton Angustifolium—or the Fountain Plant, as it is called in India—is one of our most graceful plants for table decoration. It should be grown in rich loam, peat, and sand, and requires plenty of water, but must have good drainage. Crotons, like Annassas, must be kept close to the glass and in the full light of the sun; they also like a good moist heat, and can be propagated by cuttings struck in a little silver-sand very easily.

Brexia Spinosa.—Young plants of this look very handsome on the dinner-table or in the drawing-room. They should be grown in loam, peat, and sand; they should have plenty of water all the year round; and cuttings strike quickly if kept close till rooted. A. H.

UPPER NORWOOD.

Digitized by Google

HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY FRUIT AND FLORAL MEETING, February 14.—Last year the meeting, held just one day later, proved one of the best the Society ever had so early in the season; but this year the floral display was even better, the room being filled with numbers of choice Orchids, splendid masses of Chinese Primulas and Cyclamens, and such a diversity of other plants that the whole formed, in fact, an exhibition of no small extent.

Fruit Committee.—George F. Wilson, Esq., in the chair. Reference was made to the recent sudden death of the late Mr Thomas Osborn, a member of this Committee, and it was unanimously resolved to recommend to the Council that a letter of condolence be sent to Mrs Osborn, testifying to the valuable services rendered to the Committee by her husband.

Mr James Allan, gardener to Lord Denbigh, Newnham Paddox, sent specimens of a Sprouting Kale, which the Committee considered a spurious form of Brussels Sprouts, and not superior to other varieties of Sprouting Kale already in cultivation. Mr William Melville, of the Royal Vinery, St Lawrence, Jersey, sent a collection of coloured Kales, some of which are proliferous on the midribs of the leaves; the latter are very beautiful, and received a cultural commendation.

Mr Dixon, gardener to Lady Holland, Holland Park, Kensington, sent dishes of Beurré de Rance, Glou Morçeau, and Easter Beurré. All three were in excellent condition, and the flavour, especially Easter Beurré and Glou Morçeau, was unusually good.

Mr Gilbert, gardener to the Marquis of Exeter, Burghley, sent the model of a box for preserving Grapes in a fresh state during exhibition, by means of water-bottles and a glass protection. The Committee approved the general principle, but decline to give an opinion upon the model till it has been put in practice.

Prizes were offered for the best three dishes of Dessert Apples, also for the best three dishes of Dessert Pears. In the former, Mr G. T. Miles, gardener to Lord Carrington, was first with Blenheim Pippin, Ribston Pippin, and King of the Pippins; and Mr Parsons, gardener to R. Attenborough, Esq., Acton Green, second with the last two and Braddick's Nonpareil. For Pears, the first prize was awarded to Mr Stephenson, gardener to F. Barker, Esq., Leigh Hall, Essex, who had Winter Nelis, Glou Morçeau, and Passe Colmar. Mr Gardener, gardener to Colonel Astley, Elsham Hall, Brigg, was second.

Floral Committee.—Dr Denny in the Chair. From Messrs Veitch came a grand collection of Orchids, consisting of Lycaste Skinneri, literally masses of flower; Dendrobium Hillii, with three large spikes of pale yellow blossoms; a number of specimens of Odontoglossum crispum or Alexandræ beautifully coloured; Oncidium fuscatum, conspicuous by its purple-marked lip; the deliciously-scented white-and-yellow-flowered Pilumna fragrans; Odontoglossum tripudians from New Grenada, a magnificent specimen of Cœlogyne cristata, quite a mass of white and yellow flowers; Lycaste Skinneri alba, a beautiful milk-white variety, with just a little yellow in the throat; Ada aurantiaca, Cypripediums, including the lively-coloured C. Schlimii, several Odontoglossums, Cypripedium vexillarium, and many others. Along with these were Hippeastrum Leopoldii and pardinum, both very showy, and the latter a very fine specimen. Messrs Veitch also sent a collection of Palms, of which Kentia australis and Veitchia canterburyana, two very handsome species, both from Lord Howe's Island, had first-class certificates. The Veitchia in particular

Digitized by Google

is likely to form a beautiful object for table decoration, the young leaves being of a lively green.

Mr Ware, Hale Farm Nurseries, Tottenham, sent a basket of spring flowering-plants, in which Hepaticas of different kinds and Iris reticulata were the most conspicuous. Mr Croucher, gardener to J. T. Peacock, Esq., Hammersmith, sent Agave Morganii, a Mexican species; also Agave Gibbsii from Brazil. Mr C. Noble, Sunningdale Nursery, sent Thujopsis borealis aureo-variegata, with well-marked yellow variegation. This received a first-class certificate.

Mr W. Paul exhibited several plants of his fine white Chinese Primula, Waltham White. From Mr R. Clark, market-gardener, Twickenham, came a beautiful collection of Cyclamens; and other collections in fine bloom came from Mr Wiggins, gardener to W. Beck, Esq., Isleworth; Mr James, gardener to W. F. Watson, Esq., Isleworth; and Mr Goddard, gardener to H. Little, Esq., Twickenham,—those from the latter being in many instances splendid masses of white, rose, and rosy-purple blossom, while several were beautifully spotted.

Mr Ware, Tottenham, sent a fine basket of Iris reticulata, and from the same exhibitor came a collection of Succulents.

Messrs Rollisson, Tooting, contributed a fine miscellaneous group of Orchids, Palms, and stove and greenhouse plants. From Mr Williams, Holloway, came Vanda suavis, Cœlogyne cristata in excellent bloom, and Angræcum eburneum. Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, sent in a splendid collection of Orchids; a magnificent pan of Lælia anceps, in which there were eighteen spikes of flower, some with as many as four blossoms; also beautiful specimens of Cœlogyne cristata, Odontoglossum Alexandræ, and Phalænopsis grandiflora, together with Odontoglossum nebulosum and Cattleyas.

From Mr B. Johnson, gardener to T. Clarke, Esq., Swakeleys, Uxbridge, came a remarkably fine specimen of Daphne indica rubra, balloon-trained, and bearing a profusion of flowers. Messrs Standish & Co., Ascot, sent a large collection of forced flowers, as Bouvardias, Hyacinths, Spiræa japonica, Geraniums, and Cinerarias. Among the last named were several remarkable for their newness and intensity of colour. Mr Howard, gardener to J. Brand, Esq., Balham, contributed pans of Lily of the Valley, exceedingly well grown, and a very choice bouquet.

Mr Wilson, gardener to W. Marshall, Esq., Enfield, sent two plants of Masdevallia ignea, one with four, the other with seven scapes, but these were not all fully developed. The four, however, were beautiful. Two boxes of beautiful cut blooms of Camellias were exhibited by Mr William Paul of Waltham Cross, and collections were likewise shown by Mr Grant, gardener to J. B. Glegg, Esq., Withington Hall, Cheshire, and Mr Howard, Balham.

From Mr Speed, gardener to the Duke of Devonshire, Chatsworth, came a beautiful raceme of Amherstia nobilis, a tree which has several times flowered there before, and of which a full account will be found in vol. x. page 240. Mr Richards, gardener to Baron Rothschild, Gunnersbury, sent Odontoglossum Alexandræ with very large flowers. Messrs Carter & Co. exhibited Prince of Wales, Princess-Royal, and other Caladiums; and Mr Bull, Odontoglossum odoratum, yellow spotted with brown, but, so far as we could make out, scentless, or nearly so; also Masdevallia ignea, poor compared to the specimens from Mr Wilson. Mr Williams, of Holloway, exhibited Davallia Tyermanni, a pretty dark-green graceful Fern; Tillandsia Lindeni major, with beautiful deep-blue flowers; Odontoglossum tripudians oculatum, and a group of hybrid Solanums.

Digitized by Google

From Mr Green, gardener to W. Wilson Saunders, Esq., came Rhipidodendron plicatile majus, a South African succulent plant, somewhat resembling a lady's fan. Mr D. Ferguson, Hunslow, exhibited propagating-glasses, consisting of a flat piece of glass fixed in a circular rim of sheet-iron. It appears to us that a piece of glass placed over the pot would answer equally well, and be less expensive. Mr Matthews, Weston-super-Mare, sent Gibson's Orchid pots, with perforated sides and false bottoms, said to be much superior to the ordinary perforated pots.

Two prizes were offered for the best six Chinese Primulas, distinct; the first was taken by Mr Goddard, gardener to H. Little, Esq., Twickenham, who had really distinct and rich-coloured varieties, also very well flowered. No second prize was awarded, but an extra was given to Messrs Dobson, of Isleworth, who, along with Messrs James and Tomkins, had plants in excellent bloom.

Mr William Paul, Waltham Cross, offered three liberal prizes for three plants of his Waltham White Primula, but there was only one exhibitor—namely, Mr J. Scott, gardener to J. B. Howitt, Esq., Enfield, who took a first prize.

The best three plants of Dielytra spectabilis were exhibited by Mr George, gardener to Miss Nicholson, Putney Heath; Mr Denning coming in second with larger plants, but not so well bloomed.

The only collection of six Lycastes was that shown by Mr Denning; it contained one splendid specimen of Lycaste Skinneri, others fine, and one plant of the white kind.

First-class certificates were awarded to Messrs Veitch for Kentia australis and Veitchia canterburyana; to Mr Williams for Davallia Tyermanni; to Mr C. Noble for Thujopsis borealis aureo-variegata; to Mr Green, gardener to W. Wilson Saunders, Esq., for Rhipidodendron plicatile majus; and to Mr Croucher for Agave Morganii and A. Gibbsii. Mr Bull had a second-class certificate for Odontoglossum odoratum. Cultural commendations were given to Mr Tomkins for Chinese Primulas; to Mr Speed for Amherstia nobilis; to Mr Grant and Mr W. Paul for cut Camellias; to Mr Johnson for Daphne indica rubra; to Mr Richards for Odontoglossum Alexandræ; to Messrs Veitch for their group of Orchids, also for Hippeastrum pardinum; to Messrs Rollisson for a group of Orchids, &c.; to Mr Williams for Orchids; to Mr Denning for Pilumna fragrans, also for a collection of Orchids; to Mr Wilson for Masdevallia ignea; to Mr Laurence, gardener to Bishop Sumner, for Dendrochilum glumaceum; to Mr Wiggins for Cyclamens; to Mr Ware for a group of Succulents; to Messrs Standish for a large group of plants; and to Mr Howard, Balham, for Lily of the Valley and a bouquet.—*Journal of Horticulture.*

Calendar.

KITCHEN-GARDEN.

In this department cultivators will now be more than usually on the alert: when weather is dry every opportunity will be well employed in getting seeds sown, so much requires to be done as early as circumstances will allow. However, it is not judicious to be in great haste when weather is wet and ground in sodden condition. Seeds sown in wet ground will come up weakly (if they vegetate at all), and not be so early by weeks as those sown later, when the soil is warm and in dry condition. Experienced men are all aware of this, but beginners sometimes make more haste than good speed.

All positions being chosen for the main crops, and the ground in nice mellow condition after exposure to the weather, the fork should be freely

Digitized by Google

used to make the surface fine; a coarse rake run over the surface will cause it to dry speedily, and then the drills may be drawn and the seed sown, covering it in and treading as may be necessary. There are few who now sow in beds; drills are in every way preferable to them. Clay-land sometimes cannot be worked either by hoe or rake, the spade having to be used instead: where plenty of old dry soil from the potting-bench is at hand, dry leaf-mould, or charcoal refuse, many difficulties are overcome, as the seed can then be easily covered, and the crops will make rapid progress, and may be secure a good name to the seedsmen who supplied the seeds; while careless sowing and bad preparation of soil often cause great disappointment. Sowings of Broad Beans and Peas may be made at least twice in the month. Longpod (Johnstone's) is a good Bean for second sowing; and Dickson's Favourite, or the selections from that sort of Pea, answer well. Champion of England and Hundredfold make good third sowings. Plant out the Peas grown in pots, turf, boxes, &c., staking them immediately afterwards to give protection. Brussels Sprouts, Borecole, or Kale may be sown in quantity for main crops, but sowings may be made till end of next month to fill up space where other crops are cleared off. Broccoli may not be sown till late in the month, especially in southern and early localities; when large and forward, it is too often destroyed by frost and snow. April sowings are generally most suitable for main crops, but the quick-growing kinds, such as Snow's Walcheren, Granger's, and others, may be sown till the middle of May in Scotland, and the first of June in England. Cabbage of sorts (Savoy inclusive), Cauliflower, Lettuce, Leeks, Onions, and Parsnips, may be sown for main crops. Lettuce should be only sown in small patches for some time, to be afterwards planted out in free rich soil. Leeks may be sown on a warm border, to be afterwards planted out in well-manured ground, but some prefer sowing the seed thinly where the crop is to grow, thinning out the plants and earthing up those that remain: rows 1 foot to 18 inches apart (according to richness of soil) answer well;—room must be allowed when vegetables of great size are expected. Onions will be among the first crops to receive attention; the earlier they are sown in well-prepared ground after the 25th of February, the finer the crop will be, and the roots by getting down will be the more able to combat with vermin and drought. I have observed mildew in most cases to proceed from the roots going down on a hard soil, below which they could not move, and after such a check mildew was the result. Parsnips like a rich soil, but not lately filled with rank manure; like most other roots when grown on very poor dry ground, they are tough and of unpleasant flavour: rows from 15 inches to 18 inches apart suit Parsnips. Parsley may now be sown in quantity, some on a border for early supplies, and edgings formed of it may prevent waste of ground where gardens are small. Sow a good breadth of early Horn Carrot (for drawing young); on a sloping border facing the south they will come in quickly. A ridge formed by throwing up the soil as the letter A, is equal to the best border at the base of a wall. Chervil is much valued by some, and requires to be sown frequently, as it seeds quickly. Rampion, for Salads, may be sown this month as required. Spinach, to keep up supplies, should be sown every ten or twelve days. When grown on rich moist soil, it does not seed so quickly. Where ground is scarce it may be sown between plantations of Cauliflower, or where Peas are sown on the close-row system. Turnips (early Dutch for first) may be sown in small quantities, on a little bottom-heat, and protection from frost prevents "bolting" in a measure, and the produce is more tender. Wood-ashes or soot, and a little red-lead mixed, when dusted over the surface of soil, often prevents the depredations of "fly." All Salads require to be sown at short intervals. Radishes sown on a warm position will come into use quickly. Hoops and mats, or evergreen branches, for protection, are necessary. Mustard and Cress may now be grown under handlights if well protected. American and Golden Land-Cress are excellent substitutes for Water-Cresses, and are generally valued much. They grow in any kind of soil, in any position. Celery may now be sown for main crops—in frames or handlights on a little bottom-heat is necessary, as if it chances to

Digitized by Google

get the slightest check from any cause it starts to seed and is useless. Tomatoes may be sown for a succession or for main crop; those growing in pots keep near the glass, shifting them on to larger pots as the roots fill the present ones. Sow Sweet Basil and Sweet Marjoram in heat, using light sandy soil, well drained, and be careful of drip when the young seedlings appear. Keep up successions of French Beans; when they are in full bearing, liquid manure will help them much. Frames on manure-heat answer well for French Beans at this season, and when planted out they require little labour. Sprinkling them overhead with clear soot-water keeps red-spider in check. Proceed with Potato-planting, using rich free soil for Kidneys. It is no gain to plant thickly, either for quantity or quality;—from 20 inches to 2½ feet apart for the rows is our average, allowing room according to growth of tops and richness of soil. Plant Jerusalem Artichokes in single rows, as they often require protection during autumn. Dress Globe Artichokes, and use the fork among the plants; large plants may be reduced when they have grown a few inches; young suckers for late supplies may be planted if required. The same may be said of Rhubarb; fresh supplies may be planted by dividing old crowns: when planted on fresh-trenched and highly-manured ground, the produce becomes large and tender; and if blanched Rhubarb is preferred, pots or boxes with open tops can be placed over the crowns, to remain during summer. Get Cabbage and Cauliflower from their winter-quarters, and plant them in rich soil. Cauliflower requires an amount of care with protection till free growth begins. All plants should be well hardened before turning them out. Seakale may be cut in pieces, and planted out in rows 18 inches or 2 feet apart: also sow seed.

M. T.

FORCING DEPARTMENT.

Pines.—Those with whom it is an object to have a supply of ripe fruit by the end of May or beginning of June, should by this time have a lot of Queens bloomed off that can be pushed on with increased heat and moisture, now that the days are longer and with more sunshine. To this end sprinkle the paths, &c., morning and afternoon, and sprinkle the plants lightly overhead at shutting-up time, when the weather is bright. This should be done early in the afternoon, so that the heat may run up to 85° for a short time; and unless in cold weather, range the night heat at 70°. Keep the bottom-heat steadily about 90°. And especially where it is supplied by hot-air chambers, see now that the plants are all started, that they do not get too dry at the root; and when water is necessary, either colour it with guano or give manure-water made of sheep or deer dung. The rest of the fruiting Queens intended to succeed those now started and bloomed should now have the heat advanced to 70° at night; and if they are dry, a watering sufficient to moisten the whole ball. Generally speaking, these make a growth before starting, and show finer fruit than those that start without doing so; but it is necessary to be cautious in the application of moisture both at the root and in the air, as they may grow on instead of starting if too freely supplied. Late autumn-started fruit will begin to colour by the end of the month, and be of much use just at a time when fruit is generally scarce. Give more air, and keep them drier whenever they begin to colour. If the early autumn suckers were not shifted last month, no time should be lost in getting them into their fruiting-pots, as directed in last month's Calendar. Those that have been shifted as then directed should not be pushed on too rapidly till the season gets warmer and brighter. It is a great mistake to force into rapid growth young Pines thus early. It causes them to make long weakly leaves, which no after-treatment can transform into that robustness that is desirable. These should still range at 60° to 65° at night, according as the nights are cold or mild; and with a bottom-heat of 85° they will make roots and progress slowly and more robustly, and will in consequence be in a fit state to be made the most of by-and-by. Give air more or less daily, according to the weather, and in the early part of the day, so that sun-heat can be taken advantage of in

Digitized by Google

the afternoon. Examine late autumn and early winter potted suckers, and if the soil has from any cause become soured or inert, shake them out and pot them in 6 or 7 inch pots in pure turfy loam with a little bone-meal mixed with it, and replunge them in a brisk bottom-heat with the same temperature recommended above for newly-shifted plants. By May these will be in a fit state to go into fruiting-pots. Smooth Cayennes and other sorts intended for supplying fruit in late autumn and early winter should still be kept quiet, only see that they do not now become very dry at the root, nor be kept in too dry an atmosphere, or they may be checked, and start before they are required to do so. Just keep them steadily on the move. Should any of these be still in 8-inch pots, they should now be shifted into 11 or 12 inch pots, according to the size of the plants. These will fruit and come in useful at Christmas time if rested a while after they have grown two or three months.

Vines.—Where there is still a portion of late Grapes left on the Vines, they may now be cut with pieces of the wood attached, and put in bottles of water in a cool dry room, and the Vines can be pruned and cleaned as directed in former Calendars. All Vine-wounds after this season should be effectualy dressed with styptic, to prevent bleeding, which weakens the Vines. Where the early crop to succeed these late ones is from pot Vines, discontinue watering with manure-water as soon as they begin to change colour, and gradually decrease the air moisture as the colouring process goes on. If there is any red-spider about them, let the leaves be spunged carefully over, so as to get rid of it before it gets a footing. The succession-houses that may now be stoning, and required to succeed those ripening in pots, had better not be forced hard till the fruit are stoned and begin to swell. Then they may be pushed on, if it is necessary, with a night temperature of 70° or 72°, taking every advantage of sun-heat to damp the floor, paths, &c., and to shut up with sun-heat early in the afternoon, thereby rendering it less necessary to fire hard for the night temperature. The fires should not be allowed to become very low in changeable weather, but should be kept more active, so that all fitful inclemencies can be coped with. But in steadier weather avoid by all means the undesirable combination of hot sun and hot pipes. If the roots of these Vines are chiefly in inside borders, see that they do not become too dry at this important stage; and especially if the Vines and borders are old, give them manure-water at a temperature of 80°, and, after a thorough watering, mulch with old mushroom-bed manure. Thin the bunches and berries in succession-houses as soon as it can be seen which are to be the best bunches and berries, except in the case of Muscats or any other shy-setting sorts. Stop and tie down Vines in later houses as soon as they extend to two leaves beyond the best bunch; and in the case of Black Hamburgs, all the bunches, except the best one on every shoot, had better be removed at once. Be careful in tying down young strong Vines especially, as the growths are very apt to break off at their union with the main stem if over-severely tied down at once. They should be brought to the wires by degrees to avoid this. Now is a good time to start Muscat and other high-temperature sorts that are required to be ripened in September to that golden colour which alone fits them for keeping well afterwards. This month is a very desirable time for planting young Vines. If these are Vines of last year's growth, shake them entirely out of the soil, wash their roots in tepid water, to clean them from all the old soil, and dash a few handfuls of dry sand on them, which causes every fibre, however small, to be easily spread out into its place in the process of planting. In planting Vines inside a vinery to which borders have been made both inside and out, spread the most of the rootlets towards the inside; for their natural tendency, when they begin to grow, will be towards the outside. If the Vines are long, disbud them to within 18 inches of the surface of the border. If the Vines to be planted are from eyes struck this spring, they should be grown so as not to cramp and coil their roots much, and be planted out when 2 feet high.

Peaches and Nectarines.—Until the fruit have stoned and begun to swell a second time do not raise the temperature above 55° to 60°, accord-

Digitized by Google

ing to the state of the weather; but when the stoning process is complete, it may then range 5° higher, with 10° or 15° more for a while in the afternoon when the sun is bright. Give air early in the day, and shut up early. The Peach is a moisture-loving plant, and should be freely syringed every afternoon of bright days. If the crop exceeds more than one fruit to about every square foot, let them be thinned nearly to that amount as soon as they are stoned. Too heavy crops of early Peaches are very unsatisfactory, and should never be allowed if really fine fruit is an object, unless in the case of comparatively young trees that may be growing very vigorously. Keep a watchful eye to the inside border, especially near the heating apparatus, and water and mulch as directed in the case of Vines. On trees where the fruit are set, and are the size of Marrow Peas, go over them and thin out a quantity when they are clustering thickly, but leave plenty to come and go upon till they are safely stoned. Much the same directions apply to disbudding, which should always be done gradually, till at last there is no more left than will be sufficient for another season's crop. As a rule, the terminal bud and one or two at most where the wood is thin at the base of last season's growth are enough to leave. See last month's directions with regard to later houses. In all cases where Peaches are under unheated glass give plenty of air, and keep the trees as backward as possible, for if forwarded now they may suffer from severe frost later in the season. Keep green-fly in check by fumigations of tobacco-smoke and a vigorous syringing the following morning.

Figs.—When the early crop is from plants in pots let watering be very attentively seen to, for if they even once get over-dry the crop may be lost by the fruit dropping off. Increase the night temperature to 60° where the fruit are swelling, and keep the air moist by sprinkling and syringing the plants every afternoon when the weather is fine. Give air more or less daily to prevent a weakly growth. Pinch the fruits out of the young shoots at the fourth joint. This should be seen to as soon as it can be done, in preference to letting them grow more, and then making a large bleeding wound by removing great portions of the wood. Do not allow more growth and foliage than is just enough to furnish the bushes with sufficient wood to produce their second crop. Increase the temperature in houses started last month to 60° at night; and if, as is often the case where the first crop is from trees in pots, the second crop from these is of more import than the first, do not let the first crop be too heavy. As they advance, stop and attend to the watering of these as directed for pots; if the borders are all inside the house, manure-water may be freely applied to old-established and free-bearing trees, but in the case of young trees growing too grossly give nothing but pure water.

Melons.—Sow more seed both at the beginning and end of the month for succession crops. Plant out those sown last month in a rather strong calcareous loam with no dung mixed, if to be grown on the dung-bed system; but a little may be mixed in, in the case of those to be grown in Melon-houses, with pipes for bottom-heat. Those planted last month will be growing freely. Water moderately at the root, mould up by degrees as the roots appear at the sides of the "hills," if in dung-frames. Train those in Melon-houses to within 15 inches of the top of the house before stopping them, and water them sparingly at the root until they show fruit in the lateral growths, and let the air-moisture be moderate, especially in dull weather. Keep the night temperature at 70°, and give air every day early in the day.

Cucumbers.—These require more moisture in all respects than Melons. See that those now in full bearing do not suffer for want of it, especially if their roots are in the neighbourhood of the heating apparatus. Give manure-water occasionally; avoid allowing them to carry too many Cucumbers at one time; this weakens the plants, and unfits them for their season's work. Look over them every two or three days, and pinch the young growths at every joint; remove all deformed fruit, and every leaf and growth that is likely to crowd the plants, and weaken their growth. After a season of dull weather slightly shade for a few hours in the middle of bright sunny days till they get inured to such. Range the night temperature at 70°, with 10° to 15° more for a while in the afternoon with sun-heat.

Digitized by Google

Strawberries in Pots.—See last month's directions. Thin off all blind blooms and small fruits on those that are set and swelling off; more water at the root will be required, but avoid stagnant water in saucers. The night temperature may range to 65° for these; syringe twice or thrice a-week to keep red-spider at bay, and give air freely on fine days. Plants in bloom will set best at 55° to 60° in a rather dry atmosphere, with a little air at night as well as by day. Put more plants into heat, according to the accommodation that can be afforded. The whole of the remaining plants may now be set in cold frames, where, by covering at night, &c., they will be advanced a stage, till room can be made for them in heat.

Obituary.

We regret exceedingly to have to announce the rather sudden death of Mr Thomas Osborne, of the firm of Messrs Osborne & Sons, Fulham, London. He died on January 28, at Fulham, of quinsy, aged 53 years. We feel certain that all whose privilege it was to have known Mr Osborne will agree with us that his decease will cause a blank that will not be easily filled up in the Horticultural world. He was a most gentlemanly and agreeable person, far removed above everything that was unbecoming, equally in business matters as in private intercourse; he was indeed a model in these relationships, and his periodical visits will be much missed by all who have long experienced the pleasure which they afforded, and will join with us in sympathising with his sorely bereaved and sorrowing relatives.

Notices to Correspondents.

We have to thank those contributors who have kindly favoured us with their valued contributions, and to crave their indulgence for delay in publishing them. They will have our earliest possible attention.

OXALIS CRENATA.—Being a regular reader of the 'Gardener,' I venture to ask of you or any of your readers where I can procure a few tubers of the Oxalis crenata. Some years ago in the 'Gardener's and Forester's Record,' conducted by J. Harrison, Esq., some experiments as to cultivation were recorded by Mr Harrison of Petworth House, Sussex, and Mr Wood of Woodlands Nursery, Sussex, with a view of raising this plant as a substitute for the Potato. I am anxious also to experiment upon it, and have written to many seedsmen, but have not suceeeded. Mr Hare of Hall Farm Nursery, Tottenham, had it in his catalogue, but at this time is without. I should be obliged if you can help me in the matter, and will pay any reasonable charges for them,—half-a-dozen or a dozen will be quite sufficient. Perhaps by noticing this some of your readers can help me. CHAS. CLAY, M.D.

[Can any of our readers assist our correspondent?—ED.]

A. HARMAN.—We are not sufficiently acquainted with the details and conditions of the examinations in question. If you write to the secretary at South Kensington you will no doubt receive all particulars.

YOUNG GARDENER.—A series of articles on the cultivation and forcing of fruits under glass begun this month, to be continued monthly throughout the year, will meet your wants.

C. H.—Too late. All communications to be inserted in our first issue must reach us not later than the 16th of the month.

H. C. WILSON.—Poison them by mixing arsenic with treacle and putting it in their runs. *Annoy* them as much as possible with guano-water, which they detest, and they are likely to shift their quarters.

Digitized by Google

THE

GARDENER.

APRIL 1872.

GARDENERS' WAGES.

WE have much pleasure in being able to congratulate gardeners on the advance of wages which, especially in the case of journeymen, has taken place in many instances this spring. In some cases the advance has been from 14s. to 16s., in others from 16s. to 18s., and even 19s., per week, with lodgings, &c. Most heartily do we wish that other employers who have not yet considered the comparatively low rate of their gardeners' wages hitherto, will speedily follow the example of those who have already moved in the matter. It has frequently been urged in these pages that, as a class, gardeners have been very inadequately remunerated for their labour, and for the knowledge they must acquire, and the training they have to undergo, before they can possibly fit themselves for the position of head-gardeners, in which—when they attain to it—they, alas! find their rate of wages less, in proportion to their responsibilities and requirements, than ever they were before.

For some considerable time gardeners' wages have been less, in comparison with those of labourers and mechanics, than at any previous time for many years before the recent general rise of wages; and it is our opinion that such has been the case simply because they did not bestir themselves sooner—certainly not by attempting to band themselves together in unions, and taking action in strikes antagonistic to their employers, but by a respectful representation and appeal to them. We are happy to state that we do not know of a single case, where the course we advocate has been acted upon, that has not been met by the employers by a rise of wages at once. But we could chronicle cases where employers have been approached without, to say the

Digitized by Google

least of it, that respect that should be shown by man to man, irrespective of the difference of social position. And we are certain that we are giving gardeners the very best advice when we advise those whose wages have not yet been raised, to approach their employers with confidence and respect, and to avoid adding threats to their memorials or petitions. Apart altogether from our disapproval of a contrary course, we would urge our younger and less experienced brethren to look at such a mode of procedure from their employers' standpoint, and ask themselves how they would meet and deal with an attempt on the part of any individual, or set of individuals, under them, to coerce or browbeat them. It surely requires but a shallow knowledge of human nature to see that such a course, as taken against a high-spirited and independent class, will be likely to be resented to the utmost. We know of cases where it has failed; of none where it has succeeded. And we trust the time has not yet come when a bad feeling will be engendered between gardeners and their employers by any such futile proceeding. While we thus counsel gardeners, we would, on the other hand, appeal to all employers of gardeners to take into careful consideration the rate at which they remunerate the labours and attainments of gardeners, as compared with their other dependants, who are equally as numerous,—looking at them in the light of supply and demand. If they could be got to do this dispassionately, we are almost certain the result could scarcely be any other than to the advantage of gardeners.

Surely it would be a libel on the intellect and taste of the employers of gardeners to say that they do not derive much pleasure and rational enjoyment from the skill and labour which must necessarily be brought to bear on a well-managed garden. It would be equally unjust towards gardeners to say that they can acquire the science and practice of gardening that fits them for such a ministry without a very great amount of long and patient study and labour, combined—hitherto, at any rate —with not a few hardships. We hope, however, that prospects are brightening. But while thus hopeful, we do not think that ever the advent of better times will result from any attempt to wring from our employers a higher rate of wages by any combined antagonistic movement, in the shape of a union or a strike—movements which we cannot help regarding as atrocious levellers, that have kept down the clever and the respectable, and prevented the incapable and the sluggard from sinking to their proper level. Even if such a course were desirable, and likely to succeed, gardeners as a class are too much scattered over all parts of the country, and not sufficiently numerous at any one focus, to be able to act upon it.

We confess to being able to see only two ways of raising the rate of

Digitized by Google

wages. The one is that which we have already urged—namely, that all gardeners who have reason to believe that their labours are giving their employers satisfaction should appeal respectfully, but definitely, to those employers for an advance. In the generality of cases we are certain this mode will meet with success so far. The other is, that those places which manufacture gardeners wholesale, by working almost exclusively with apprentices, should pursue a contrary course, and employ more labourers and fewer apprentices. This in time would lessen the supply, and, as a consequence, raise the scale of wages. These methods, combined with any action that would expel from the ranks of horticulturists those miserable pretenders which some have seized upon as examples of the mass, and by so doing have done their best to bring gardeners into contempt, instead of showing that such men, from the low wage they are ready to accept, have been harming a class of men who are generally far above their social position in both intelligence and self-respect.

Badly as under-gardeners have hitherto been paid, we are certain that head-gardeners have been still worse paid; and we hope that while the one class is being considered the other will not be forgotten. On this point we are happy to state that we know of noblemen who are moving in the matter without waiting to be appealed to, and can only wish that such cases will multiply until every underpaid gardener in the kingdom has his salary increased.

FORCING PEACHES—TEMPERATURE.

The Peach is hardly second to the Grape as a dessert fruit, and I daresay it will be admitted that it requires even a greater share of skill and attention to secure a good crop of fruit, particularly when it is forced early, as it is in every establishment of note. Every gardener knows, or should know, that to estimate his crop of Peaches before the stoning period is passed, is like counting the chickens before they are hatched. I wish, therefore, to say a few words about the treatment of the Peach, as regards temperature, more particularly from the time the trees are started—in December, we shall say—till the fruit is stoned. I have already stated in the 'Gardener' what I conceive to be the advantages of syringing the trees when they are in bloom; and I would only state here, that another season's experience has convinced me beyond all doubt that a liberal use of the syringe is followed by the best effects. I am conscious, however, that there are other important matters to be studied in connection with the blossoming and setting of the Peach and other fruits, and amongst the chief of

Digitized by Google

these is temperature—a question, I think, of considerable importance, having much to do with success and failure, and therefore worthy of discussion.

Several standard authorities, including Mr R. Thompson—perhaps the most reliable authority we have upon fruit-culture generally—recommends, I venture to think, too low a temperature for the Peach in the early stages of forcing. Mr Thompson advises a minimum temperature of 40° and a maximum of 65° for early Peaches, from the time the trees are started till the fruit attains the size of small marbles; and after this, a rise of 5° on the night and day temperature till the fruit is stoned. This, indeed, is about the temperature generally recommended, more by way, I fancy, of inculcating caution at a critical period, than describing actual practice; for at this slow rate it would not be possible to have such Peaches as the Royal George ripe before the middle of June, supposing the trees to have been started in December—that is, taking probable dull weather and other contingencies into account. A minimum temperature of 40° would probably not be too low, if we could calculate on constant sunshine in the daytime; but it must be borne in mind that forcing is carried on during the dullest season of the year—so dull, in fact, is it sometimes for days and weeks together, that the temperature of forcing-houses would never rise a degree above the night temperature if not assisted by fire-heat. Under such circumstances the above *rate* of temperature would be found to be too low if the Peach-trees were in bloom, and failure only might be reasonably expected. This, at least, has been my constant experience for many years. Up till five years ago I adhered pretty strictly to the temperatures above stated, and I must say that, unless when favoured by a good deal of sunshine, I never saw what could be called a good set of fruit under such treatment, and I find this to be the experience of some others who have taken notice of the matter. I noticed at the time to which I refer, that the best part of our crop of early Peaches was directly above the pipes which went round the front of the house, and that the crop got much thinner as the distance between the trees and the pipes increased. This, however, was not the only instance of the kind I had noted, but it was the most noticeable example; and I was so struck with it, that some time afterwards I had one of the coils of piping removed from the front of the house, and connected so as to run along the centre of the house, in order to equalise the temperature more. Since then our early Peach-house has always been started at a temperature of 45°, allowing a rise of 20° or 25° with sun, and in dull weather forcing it up to 7° or 8° above the night temperature, admitting air at the same time. When the trees are just about expanding their flowers, the minimum tempera-

Digitized by Google

ture is raised to 50°, with a proportionate rise during the day; another 5° is added to the maximum and minimum temperatures when the trees are fairly in bloom, and after the fruit is set a temperature of 60° is maintained till it is stoned. Of course some abatement is made in the night temperature during severe weather, being careful to make it up with sun-heat on all favourable occasions. Under this treatment, I can say with truth that our early Peaches have never failed to set a more than abundant crop. This year, after passing through the dullest forcing season, so far, that I ever remember, they have set so thickly as to render the thinning of the fruit a task. I may say that the trees, while in bloom, were syringed about three times a-week during the dullest time.

[How would this answer in a lower temperature?—Ed.]

It has been stated that the Peach has been known to set its fruit well outdoors when the temperature has been as low as 32° at night. This is a fact which no doubt has led many to err on the side of a low temperature in forcing. In dull, cold weather, with the thermometer at 40° or 45°, perhaps, day and night, neither Peaches nor Apricots ever set well, so far as I have observed; but I have seen them set thick enough in March and April, when the sun has been constant and strong enough to heat a south wall up to a very high temperature during the day, for some days together, though the dews were copious and the temperature low enough at night. I have little doubt that the mean day and night temperature of a south wall, under such circumstances, would be found to range higher than most people suspect, and higher, probably, than the temperature I have recommended for forcing.

J. Simpson.

Wortley.

[We have always seen Peaches under glass, even in the latest houses, set most thickly when a little extra heat was kept in the pipes, and always put it in practice ourselves.—Ed.]

WIRING FRUIT WALLS.

In your March number D. Mackie requests information respecting the success of wired walls in late or northern localities. Not having practised in northern districts, I cannot refer to facts, but I would observe for the consideration of your inquiring correspondents that a wired wall is not of necessity a colder wall than if it were not wired. I grant that if you keep your netting or wires a few inches from the wall, as I recommended to be done under glass, heat would be lost in the open air. But if your wires are placed close to the wall, you then secure all the absorbed heat of the bricks, and secure all advantages of nailing, without any of its disadvantages, which, having formerly pointed out, need not be here repeated. I still advocate covering walls with netting or wires, but I am no advocate for the use of studs, screws, wire-strainers, &c., as if a deer-fence were being erected in the park.

Alexander Dawson.

March 14, 1872.

Digitized by Google

NOTES ON HARDY CONIFERS.

ABIES (THE SPRUCE FIRS).

(*Continued from p.* 114.)

DISTINGUISHED from the true Pines by their pendent cones and short solitary leaves, in some species scattered irregularly round the shoots, and in others more or less distinctly in rows, as well as by their peculiarly erect conical habits of growth, the Spruce Firs rank among the finest of our evergreen trees.

They are for the most part natives of the colder regions of Europe, Asia, and America, where they extend to the utmost limits of woody vegetation, forming immense forests, thriving in the soils of almost every geological formation, but attaining their greatest heights and perfection when sheltered from the blast, and where the soil is of a peaty or rich alluvial character.

Most of the known species are quite equal to the climate of Britain, doing well in almost any situation, if not too dry.

Nearly all the really hardy sorts are useful for decorative planting, and worthy of being extensively introduced into parks and pleasure-grounds, where they form handsome single specimens, while their bold outlines and distinct colours render them invaluable for producing striking landscape effects, either when grouped in masses or blended with other trees.

We note the following as among the most distinct species and varieties in cultivation :—

Albertiana—*Prince Albert's Spruce*—also known as Mertensiana, was introduced about twenty years ago from Oregon, where, as well as in Northern California, it is found occupying vast tracts of country, and rising to heights of from 100 to 150 feet, forming a handsome bushy-headed tree, with a straight tapering stem from 4 to 6 feet in diameter near the ground. In general appearance it so closely resembles the Hemlock Spruce (A. canadensis) that it was at first regarded as a variety of that species; it is, however, quite distinct, having a stronger constitution and more rapid growth, while the leaves are shorter, more slender, and produced in greater profusion. It is thoroughly hardy in this country, and does well wherever the soil is moderately moist and contains a good proportion of decayed vegetable matter. Few plants are better adapted for lawns, or any situation requiring single specimens, its graceful drooping branches and neat pyramidal outline rendering it always attractive.

Alba — *The White Spruce.* — Indigenous to the colder parts of Canada and the United States, extending to within twenty miles of the Arctic Sea, seldom rising higher than from 30 to 50 feet, with a

Digitized by Google

straight stem of from 1 to 2 feet in diameter near the ground; was introduced into Britain in the beginning of the last century. It is one of the hardiest of the species, thriving in the bleakest situations, and in most soils if not very dry, but preferring a somewhat shady situation or northern aspect: it forms a handsome pyramidal tree, regularly and thickly furnished with branches from the ground upwards. The leaves, which are thickly scattered over the branches, are of a very light glaucous tint, giving the plant a distinct silvery appearance. Of several varieties that named Glauca is most popular, having much lighter foliage, and a habit of growth, though scarcely so robust, otherwise very much the same as the species.

Alcoquiana—*Alcock's Spruce.*—A recent introduction from the Fusi-yami Mountains in Japan, where it is found at an elevation of 7000 feet above the level of the sea, growing to heights of from 80 to above 100 feet. Though as yet a comparative stranger, and not very widely known in British gardens, it is without doubt a valuable addition to our hardy Coniferæ, and worthy of a place in every collection, being a free grower, and having a neat dense conical habit. It should have a rich soil and a moderately sheltered situation.

Canadensis—*The Hemlock Spruce.*—One of the commonest trees of Canada and the colder parts of the United States; it is found in greatest perfection on the edges of swamps, where the soil is deep and constantly moist, forming a fine bushy-headed tree of from 80 to 100 feet in height. It has been cultivated in this country for upwards of 100 years, and has been much valued for ornamental planting. The branches are very numerous, slender, and drooping, giving the tree a graceful feathery appearance quite distinct from the other species. The leaves are broad, set in two rows, and of a light-green tint on the upper and glaucous on the under surface. It requires a sheltered situation, and thrives best in a moist rich soil, growing in such circumstances with great vigour, and forming a beautiful specimen-tree.

Douglasii—*Douglas's Spruce.*—This majestic tree was discovered and named after the late distinguished collector, David Douglas, to whose indefatigable labours we are indebted for some of the grandest and most valuable of the American Coniferæ. It is found widely distributed over North-West America, California, and on the Rocky Mountains, varying in height from 20 to 50 feet in high exposed situations, to nearly 300 feet in low sheltered valleys. Though only grown in this country since 1827, there are already some noble specimens, showing its thorough hardiness and adaptability for our climate, thriving well and growing with great rapidity in most districts, and accommodating itself to most soils, but preferring such as are sheltered,

Digitized by Google

with a soil of a deep rich loamy character. It is a magnificent park tree, and is worthy of extended cultivation for its timber, which is said to be of the finest quality and very durable. The variety from Vancouver Island is the most robust, and differs from the species in having longer leaves and a more erect habit of growth. There is also a beautiful variety with silver variegated leaves, which is much admired as a lawn plant. The leaves are flat, irregularly arranged in two rows, from 1 to 1½ inch long, bright green above, and paler below. The branches are very numerous, and the tree has a regular conical habit.

Englemanii—*Engleman's Spruce.*—Found wild on the Rocky Mountains as a dwarf tree or bush of a few feet, and in the sheltered valleys of New Mexico attaining the height of about 50 feet, and introduced into Europe a few years ago. It is a slow-growing though particularly elegant and distinct species, quite hardy, and likely to prove a great acquisition to our ornamental trees. The leaves are of a light, somewhat glaucous green, thick and bristly, densely scattered over the shoots. The branches are very numerous, regularly disposed round the stem from the ground upwards, giving the plant a neat conical appearance. It prefers a damp, rich, and deep soil, with a situation sheltered from the blast.

Excelsa—*The Norway Spruce.*—A well-known and noble tree, long cultivated in Britain, not only for ornament, but for its valuable timber; is found indigenous over a wide area of the colder parts of the continent of Europe, growing well in almost every soil and situation, and attaining heights of from 50 to over 100 feet, according to the circumstances in which it is placed, the highest and finest specimens being invariably found in valleys where the soil is deep and moderately damp. There are many interesting and valuable varieties in our pleasure-grounds, some of them of rare beauty as lawn plants, and all worthy of introduction into collections of ornamental Conifers. Among these we notice Findonensis, a peculiarly striking plant of English origin, having the leaves on the upper or more exposed parts of the shoots of a pale-yellow tint, changing to deeper brown as they become matured, while those on the under side are deep green. This variety is in other respects identical with the species; Monstrosa, a curious Araucaria-like form, with long straggling branches and few lateral shoots, is well worth growing for its grotesque appearance. Pyramidalis, a miniature of the species, forms a neat little lawn-tree. Inverta has a graceful weeping habit, quite distinct from any of the other Spruces, and makes a fine specimen-plant. Clanbrasiliana, Compacta, Gregoryana, and Pumila are dwarf bushes, never exceeding 2 or 3 feet in height, of slow growth, and of dense formal

Digitized by Google

appearance, very useful for rock-works, small garden figures, or lawns of limited extent; they do best in a light soil, well drained, and should on no account be planted in a shady situation, or where they are exposed to drip from trees.

Menziesii—*Menzies's Spruce.*—This noble tree was discovered and sent home by Douglas in 1831 from Northern California, where it occurs in great abundance in damp situations, attaining heights of from 50 to 100 feet. It has proved one of the hardiest of the species, and forms a grand ornamental tree, of a conical shape, densely branched to the ground. The leaves are bright green above and silvery beneath, giving the tree a shiny appearance when the branches are stirred by the wind. Few of the hardy Conifers are more desirable either for parks or forest planting. It is a very rapid grower, and thrives best in a stiff loamy soil.

Morinda—*The Himalayan Spruce*—also known as Khutrow and Smithiana—is a noble tree, found in the Himalayas at elevations of from 7000 to 12,000 feet above the level of the sea, and attaining heights of from 50 to 120 feet. It was first sent home in 1818, and has proved itself quite hardy all over the country. Few trees are more graceful, or more handsome on lawns, or any situation where it has room to develop its branches. It has a fine conical habit, thickly clothed to the ground with drooping branches. The leaves are profusely scattered over the shoots, from 1 to 2 inches long, and of a deep-green colour. It should be planted in high but sheltered situations, and prefers a cold clay soil.

Nigra—*The Black American Spruce*—from the coldest regions of Canada and the United States, has been grown in this country since 1700, and is a remarkably handsome and distinct tree, attaining in its native habitats heights of from 70 to 80 feet. It has a handsome conical habit of growth, very densely furnished with branches to the ground. The leaves are thickly scattered over the branches, very short, and of a very dark green colour. It is quite hardy here, and grows best in a low damp situation, with a rather stiff soil. It is a distinct and beautiful ornamental tree, its peculiarly dark colour contrasting effectively with other trees of a lighter shade.

Orientalis—*The Eastern Spruce.*—Indigenous to mountains in the Crimea, and abundant on the shores of the Black Sea, from whence it was first introduced in 1825; is one of the finest of the species, rising in its native valleys, with a straight stem of 1 to 2 feet in diameter, to heights of from 60 to 80 feet. It is here thoroughly hardy, of somewhat slow growth, but at all times a most beautiful plant, with a broad conical habit, thickly branched from the ground upwards. The leaves are very short, of a fine dark-green colour, and produced in great profusion. It

Digitized by Google

luxuriates in a damp peaty soil, and will do well in any situation slightly sheltered from the full force of the blast.

Pattoniana — *Patton's Spruce* — also known as Craigiana, and Hookeriana, was sent home from Northern California by Jeffrey, and named in compliment to Mr Patton of the Cairnies—is described as one of the most magnificent of the Californian Conifers, rising to a height of 150 feet. It is quite hardy in this country, and forms a remarkably distinct and beautiful specimen tree, with slender branches densely clothing the stem to the ground. The leaves are short, thickly scattered over the branches, and of a glaucous green colour. It is found to grow well in a loamy soil, not too moist.

HUGH FRASER.

THE FERNIEHURST ORCHIDS.

WHO does not love Orchids? Who that delights to gaze on the superlatively beautiful in either nature or art can honestly assert that they do not care for these brilliant gems? the richest, the rarest, the most chaste, the fairest that sparkle in fair Flora's coronet, and add so very much to its beauty and elegance. If any gardener can be found who does not fully appreciate them at their true worth, he must be one who, having only seen them in a miserable, parched, and neglected state, half rotten with "spot," or filthy with insect parasites, has then and there, in well-merited indignation, determined to avoid them for the future. Perchance, however, he may be one who has failed in his clumsy and ill-directed efforts to grow them, and has thenceforward resolved to abuse them as much as possible, which is merely another way of working out the fable of the "Fox and the Grapes." In this paper, however, we wish to speak in an honest, friendly way to those of the first class—those who have never seen them grown well; to those of the second class, who have hitherto failed to cultivate them satisfactorily; and to those of another, and this is the largest class—namely, those who *love them*, and consequently grow them with good success. While I pen these lines my thoughts will carry me to many places where Orchids are a specialty—to Chatsworth, the Palace of the Peak, for example, where tropical Vandas luxuriate in the warm, humid temperature of the plant-stoves, and produce their richly-coloured blossoms in a glorious profusion but rarely excelled. Or perhaps my thoughts enable me in a great measure to live over again the happy moments spent in gazing on the lovely Phalœnopsids of Dr Ainsworth of Manchester, or C. Stead, Esq. of Baildon, near Leeds. Imagination, again, pictures the rarest and most beautiful of Orchids, as seen in the great trade collections of James Brookes & Co., Man-

Digitized by Google

chester; or Veitch, Rollison, Low, or Williams of metropolitan—yes, and also of cosmopolitan—fame! Still, however vivid the recollections with which a retentive memory supplies us, our thoughts will constantly revert back and linger over the glories of Ferniehurst—the English home of "cool Orchids," or, to individualise more particularly, the Odontoglots. Here, revelling in full and luxuriant vigour may be seen the chaste Odontoglossum Alexandræ by the hundred, producing an abundance of its delicate blossoms on fine branched spikes, some of the individual flowers being upwards of 5 inches across. Again, side by side with these will be found half-a-dozen plants of O. Uro-Skinneri, making great plump bulbs and fresh foliage that any enthusiastic Orchid-grower could gaze on in raptures for an hour together, while some of these plants have produced flower-spikes a yard long, as thick or thicker than a swan's quill, and bearing seventeen or eighteen large and richly-coloured flowers each. Then comes a batch of O. nebulosum—twelve or fourteen fine plants—with fine growths, and seven or eight great flowers on each spike. The Cape Disa, D. grandiflora, may here be found literally revelling in the cool, genial atmosphere and constant humidity of the Odontoglossum house; and then comes one of the finest Orchids in cultivation, Oncidium macranthum, one plant having thrown up a spike 12 feet long, bearing in all forty-four flowers! Some of these specimens have pseudo-bulbs 7 inches long and nearly as much in circumference, plump and shining as though literally stuffed full of well-digested food; while the digesting or elaborating organs themselves—I allude to the fine pairs of deep-green leaves on the apex of each bulb—look none the worse for the great amount of work they have done. Here in addition are Masdevallias, Massonia (punctata); other Orchids, as O. phalœnopsis, O. cucullatum, O. ramosum, Epidendrums, Barkerias, Lœlias, and others,—but all characterised by a most exuberant degree of health and vigour. And now let us chat a little on the very excellent course of treatment by which the above results have been obtained. In the first place, I mention a fact which applies to most of the specimens of cooler growth at Ferniehurst, and wish it to be understood as being a fact of the greatest importance. *These plants have never been subjected to a high temperature*, especially during the winter months; and I look on this as being a great point to be observed by all who wish to cultivate "cool Orchids" in a successful and satisfactory manner. These plants may have been imported from habitats where the annual mean temperature is many degrees higher than in their new home at Ferniehurst, but being gradually and judiciously inured to a cool temperature as soon as received, they have adapted themselves to circumstances which I have not the slightest doubt would seriously injure plants of the

Digitized by Google

same species which other cultivators have thought fit to subject to a much higher degree of temperature.

The collection at Ferniehurst teaches us a very valuable lesson—namely, that it is not always wise to imitate the temperature of their native countries to the very letter, since these plants have in many cases produced growths fifty per cent larger than those made in their native habitats, and at the same time have flowered equally well. I will willingly grant that what are generally known among gardeners as "cool Orchids" may be well grown in a mean annual temperature 10° or even 15° higher than the one adopted at the place above named; but more heat is not necessary, since they may be grown equally as well in a mean of 60° or even 55°, which is not so very far above the mean annual temperature of our own land. The minimum winter temperature of the cool Orchid-house above alluded to is 40°, while during the hot summer months *no fire-heat* is employed, and air is freely admitted both by night as well as during the day. Neither is the humidity of the house allowed to fall so much as some writers recommend during the winter, since at that time many Odontoglots and Oncids are growing freely, and it is essentially requisite for them to receive an abundance of moisture in the atmosphere as well as at their roots. The same may also be said of Disa grandiflora, which, alas! is but too frequently starved to death by the pernicious rule of keeping it dry during winter, whereas at that period it should be watered freely, and syringed once or twice overhead every day. Treated in this manner, the plants at Ferniehurst flower profusely; and really, when well done, this is one of our finest Orchids, and one cannot avoid wishing that some enterprising collector would introduce its congener D. macrantha, a very variable and at the same time a very beautiful plant. We have indeed much to learn on the application of water to plants in our houses; and while gardeners recommend us to refrain from watering plants while at rest or inactive, Dame Nature soaks them freely the cold winter through! In the Nottingham meadows, Crocus vernus, the common spring Crocus, was recently entirely submerged; and not unfrequently the water above them is frozen over, and skaters and sliders glide over the sod beneath which they must be as wet and sodden as 2 or 3 feet of water can make them; and yet the water is scarcely gone before the last few sunny days have called them forth in all their freshness and beauty. This is but a solitary instance of the many which any close observer of nature could quote on the subject, but for the present it may suffice as an example. To return to the cool treatment of Orchids, I may say that it, as a system, has many adherents, amongst whom may be named one of the best cultivators, and an authority on any matter relating to Orchids gene-

Digitized by Google

rally,—Mr J. Anderson, Meadow Bank, Glasgow; Mr R. Warner, Broomfield; and last, though not by any means least, E. Salt, Esq., Ferniehurst, Bradford, to whose skilful and highly intelligent gardener, Mr E. Cully, the author of this paper owes much for information received. One need scarcely point out the many advantages of a cool house for Orchids where practicable, since they are both many and obvious. In the first place, a deal of fuel is saved; and it is needless to descant on the pleasure of inspecting plants or flowers in a cool airy temperature in comparison with the uncomfortable closeness of ordinary Orchid-houses. As a matter of course, *all* Orchids will not conform to this cool *régime*; but then this is no argument in favour of growing *all* the species in hot vapour-baths when there are scores that will succeed to perfection—or as near to that desired end as it is possible for us to arrive—in a cool temperature similar to that cited above.

F. W. B.

A GOSSIP ON THE GENUS BEGONIA.

FIFTEEN or sixteen years ago, before the equivocal phrase "foliage plants" became familiarised by the force of daily use, Begonia Rex was introduced to and welcomed by British gardeners. It created quite a furor among plant-lovers, for it was remarkable and novel, there having been nothing in cultivation previously except B. Xanthina, and its varieties argentea and marmorata, that approached in any respect the peculiar leaf-character of Rex. This so-called King of Begonias was an immense improvement on any of his nearest pre-existing blood relations, but his claim to a royal title was not very well founded—a statement that has been clearly verified in the short-lived run of popularity which he and his dynasty of "foliage" successors have had. When the glamour of novelty abated, it was seen that he could only be regarded as a very petty and rather coarse princelet in the great family of Begonia. He was, in fact, only a scion of one of the smallest branches of the family, the principal recommendation of which was an odd singularity of character, unaccompanied by any feature that could in any sense be put forward as ornamental. The prototype of this branch, B. Xanthina, now hardly to be seen in cultivation, except in some of the botanic gardens, a circumstance which only the lovers of curious plants will regret, is one of the oddest of all Begonias. It appears to have borrowed the fashion of its brownish-olive leaves from the lop-ears of the elephant, and the dingy whity-brown flowers are more like distortions of the common character of those of Begonia generally, than anything else in the floral way that has come under the notice of the present writer. Rex, and the host of varieties

Digitized by Google

of similar character that were introduced subsequent to it, inherited the peculiarities of the odd prototype in an exaggerated degree. The leaves remained true to the lop-ear pattern, but increased in size; and some variety in the extent and the manner of their colouring was the principal evidence of individualism the ever-increasing varieties severally presented. For a year or two it appeared quite an easy matter to improve the character of the leaves, or at least to introduce novel features into them; for the varieties soon became very numerous, the demand for them among the admirers of foliage plants of any pattern being very good. It was quite different with the flowers; they declined to be improved a bit, and are the same dingy curious objects to-day that they were in the palmiest days of Rex. Perhaps it was never seriously tried to improve the flowers, though it was alleged that it was attempted, but failed, through our Belgian brethren, who have the honour of having set up Rex and his dynasty, not having hit on the right way of coaxing nature into a mood favourable to their designs on the refractory floral organs. Ill-natured people, non-admirers of the lop-ear Begonias, contemptuously insinuated that the insignificance and comparative ugliness of the flowers were to be accounted for by the law of compensation—that it was more than the most inconsiderately sanguine could expect that nature should expend so much force and matter in the production of leaves, and be equally lavish when the flowers came under her hand. It is not worth while to inquire whether these cavillers spoke the truth in this matter, but it is quite certain they truly predicted the fate of the Rex dynasty when they said it would fall; for it began, after a brief period, to decline in popular favour, and a few years ago had sunk to zero, whence there is no hope that it will rise, in the present generation at least.

It does not appear that its decline has been very much regretted; no one, at least, has thought it worth while to come forward with any plea on its behalf: but there certainly is a very general feeling of satisfaction that it has gone the way of all despotisms. While it lasted, its influence was supreme over many; and it contributed in a large degree to impede the progress of improvement in the stocking of our glass-houses during a period of perhaps unparalleled activity in botanical exploration, which resulted in the introduction of many beautiful plants of different families, including also valuable species of the Begonia race itself hitherto unknown to cultivation. A Begonia fever would be rather a healthy horticultural malady, provided it were somewhat catholic in the exhibition of symptons, and that it embraced all that the family contains, about which an honest fever might reasonably be got up. It is one of the largest of the flowering families of stove and greenhouse plants at present in cultivation, embracing

Digitized by Google

about 400 species as known to botanists, and perhaps one-third of these are, or have been, introduced to cultivation. Like all large genera, there is an immense range of variety in its members,—elegance of inflorescence, with striking distinctness of form and habit, being exemplified in every species more or less; and in not a few brilliancy of colour intensifies the other charms. What, for instance, can compete for loveliness and grace with B. Fuchsioides? As a pillar-plant, and covering for a wall where it may extend itself in comparative freedom, it is unsurpassed. B. Putziesii is scarcely less beautiful, but is better adapted for pot-culture as a specimen plant. B. urophylla, manicata, and hydrocotylifolia are among the most profuse, yet elegant and distinct, of flowering plants, and are, moreover, winter and spring flowers. B. nitida and Dregei flower continuously the year round, if they are kindly encouraged thereto. These are all evergreen species, and there are many of the same habit worthy of being named along with them, but limited space forbids an extended enumeration. The only other, therefore, in this class which I shall name as one that should be in every collection of plants, is B. odorata, a pretty and pleasantly-fragrant species, which for the latter quality alone deserves to be largely cultivated for cut-flower purposes. There is another no less interesting and valuable class of Begonias that have all but entirely disappeared from cultivation—namely, the herbaceous species. The best known of these at the present time is B. boliviensis, a curious recent introduction of good decorative points, and B. discolor, which is occasionally seen in cottage-windows in some parts, but most rarely in private gardens. Other species, such as the brilliant B. diversifolia and the interesting B. octopetala, are perhaps lost to cultivation; they are, at least, among the rarest of cultivated plants, if they do hold a place anywhere in this country. The great beauty and usefulness of the latter of these last-named species renders it a very regrettable thing that it should have disappeared from cultivation. The flowers, as the name implies, are furnished with eight petals, and are the largest of Begonia flowers with which I am acquainted: they open in winter early, and continue to be produced for many weeks in close succession on individual plants; while with a little management, in bringing relays of them into heat at successive periods, it may be had in bloom the winter over. Such a plant should be in every collection of indoor winter flowers, and is worth a journey round the world to find.

No one who knows anything about the cultivation of stove and greenhouse plants requires to be told how to set about the culture of Begonias. There is perhaps no more easily cultivated class of plants—and that is a great point in their favour, when balanced with their excellent decorative qualities. A good rich open loamy soil, with ample drainage,

Digitized by Google

so that their generally great requirements in water may be met without risk of stagnation, and a warm moist atmosphere, the moisture being supplied by means of the source of heat rather than by the syringe, are conditions under which all evergreen Begonias will thrive. The herbaceous species require different treatment at different seasons of the year. They like a good warmth and moisture in their growing season; but after flowering is over, they require to be brought gradually to rest in a cooler atmosphere. One great mistake I have very generally seen practised with these is that of drying them off too much and too quickly, whereby their tuberous roots, not unlike those of the Caladium, are hastened or prematurely and insufficiently ripened, and of course they keep badly, and turn out dead in spring or at starting-time. If well ripened, the roots will bear wintering in any place that does not fall below 35°. B. octopetala requires the treatment of its class, in all respects adapting it to its natural period of rest in early summer, or as it falls in if treated successionally. W. S.

HINTS FOR AMATEURS.—APRIL.

DISBUDDING of trees will have already commenced in early localities, and where time can be afforded to do this work properly, great advantage to the trees and economy of labour is gained. A few hours spent by an active finger and thumb will go over a great breadth of wall at first thinning. Well-placed shoots near the base of the present fruit-bearing ones are generally most desirable for next year's fruit-bearing wood. On weakly trees the stronger shoots should be left, and *vice versa*. When any are likely to take the lead, nip the tops of them out. Regularity is to be observed when a well-trained fruit-bearing tree is desired. All shoots growing out from the walls are to be rubbed off. Small natural spurs growing close to the wall are to be retained. Insects on foliage must have attention before they do mischief. Quassia-chips boiled in water is a cleanly insect-destroyer. Clarke's insect-destroyer, or tobacco-water, are other agents of destruction. Caterpillars among Apricots can only be thoroughly cleared by hand-picking. Hellebore-powder may be syringed on the under sides of bushes and trees with good effect; a handful to a 3-gallon pot of water is about enough. Strawberries should now be thoroughly stirred among the plants with the hoe, making all clean before mulching is done. Lawns, shrubberies, and walks may now be kept thoroughly clean, using the broom, roller, rake, &c., as may be necessary. To keep lawns from being scorched, timely and light mowing is necessary. When grass is allowed to become long and strong much injury is

Digitized by Google

done, and an unsightly lawn as well results. Grass-edgings of walks may be made even with edging-iron, but pieces out of the line only should be cut off. Evergreen shrubs may yet be lifted with care, if not already done. Watering and mulching them should have attention, and in dry weather newly-planted shrubs may have the syringe applied to them night and morning.

Roses may be pruned and pegged down, if not already done, and let timely attention be given to grubs and insects. Pot Carnations and Picotees into soil that has been prepared in winter, and well looked over for wire-worm. They do well in rich loam, watered with liquid manure, when roots have filled the pots; but when pots for these, or indeed any plants, are filled with rank manure among the soil, they seldom do well. Healthy manure-water, made with soot and guano, makes an excellent stimulant. Plant all spare Picotees, Carnations, and Pinks into the borders, if the plants are not wanted for potting. Auriculas coming into bloom must be kept from wet, and have rather a shady position. They may be improved with good surfacings. Balsams, Cockscombs, Globe Amaranthus, Egg-plants, and other things for summer and autumn decoration, may now be sown. Balsams and Egg-plants are gross feeders; they like to have plenty of air, and be kept near the glass; and a gentle bottom-heat, in which the pots are plunged, suits them. Cockscombs and Globe Amaranthus do with more heat, but are impatient of a very close atmosphere. Sow more German Stocks, and Asters of sorts. Ground in which they are to be planted by-and-by should now be freely worked. They like rich soil. Marigolds, Zinnias, Rhodanthes, and similar plants should now be got forward. When they are strong enough, they can be pricked out into boxes, grown on, and then hardened by air, preparatory for planting out. Hardy annuals may be sown now, but most of them come in quickly; and when they are very early, their beauty is over before autumn arrives. Let bedding-plants be hardened gradually, and got ready for planting out. If Pelargoniums, &c., have been under shade while making their growth, they should be exposed gradually to the sun. Any pot-bound bedding-plants are better if they can be turned out of the pots into light soil till they are planted. Labour is thus saved, as well as the health of the plants. Calceolarias will stand no coddling. When they are turned out into turf-pits, using loam and leaf-mould at their roots, they will grow rapidly. Protection from frost and heavy rains is necessary for them. Dahlias and similar tender plants must be exposed with caution, as well as be kept free from a close, damp atmosphere.

Hollyhocks, Sweet-williams, Wallflowers, Pansies, and all hardy decorative plants may be planted out without delay; keeping them

Digitized by Google

stunted in pots, boxes, &c., gives extra labour, and is injurious. Arabis, Stachys, Cerastium, Ajugas, Sedums, and all such plants for edgings, &c., may be planted out. There is so much to do at the bedding-time that it is difficult to combat with every pressing duty. Chrysanthemums should be kept growing steadily, with plenty of light and air. Do not allow them to be drawn up weakly; top them regularly to make compact plants. They must be shifted to larger pots as they become filled with roots; they do well in rich turfy loam, and require plenty of water. Sow Primula for early flowering. Those sown in March should be kept near the glass. Indian Azaleas which have flowered early should have all seed-pods taken off, and a warm moist atmosphere afforded to get them to make their growth. Camellias, Epacris, Autumn Gracilis, Hyemalis, and other free-growing Ericas, are improved with heat and moisture when making their wood; if only to flower late, an ordinary greenhouse temperature suits them. Those cut back, and which have started freely into growth, should be shifted into larger-sized pots, using good peat, sand, and charcoal. If plants of any kind are to be kept to any size, the ball may be reduced and the plant potted into same sized pot after it has been well cleaned and drained. Get a good stock of plants potted for summer decoration of windows, cool glass structures, &c. Choice Zonale Geraniums, Fuchsias, Heliotropes, shrubby Calceolarias, Lobelias, Centaurias, Coleus, and such easily comeatable things, make a grand display when grown into compact plants. Stage Pelargoniums will require frequent looking over for insects, and staking neatly to form the specimens. Achimenes, Gloxinias, Gesneras, may be grown to perfection in a manure frame with a nice healthy warm atmosphere, giving air as the plants advance in growth, shading from bright sunshine. All plants in flower, such as Cinerarias, Primulas, Cyclamens, &c., will require plenty of water and to be frequently picked over. M. T.

ERICA LAMBERTIA ROSEA.

THIS variety of the Heath tribe is, we presume, well known to most practical gardeners and florists generally. It may, however, not be out of place to bring it before the notice of some readers of the 'Gardener,' particularly its long-flowering properties; at least such has recently been our experience with it. A moderate-sized plant, growing in an 8-inch pot, has bloomed more or less profusely since September last, in a span-roofed house, despite the exceptionally dark weather we have experienced from the end of November till the opening of March. The plant in question, with a few more vigorous young specimens, forcibly reminds us of what the best authorities on Heath-culture have always regarded as indispensable to success, and what we are fortunate enough in having always at command — viz., good fibry peat, entirely free of anything like "sloppy" or "fatty" substance, with a good proportion of sharp sand through it, and also a bountiful supply of pure soft water. These resources, along with ordinary attention, such as abundance of light and air, &c., will secure a deep shade of foliage and profusion of flower; and the want of the former, we think, renders the Heath a much less admirable object. D. MACKIE.

Digitized by Google

STRAWBERRY FORCING.

(*Continued from page* 109.)

HAVING prepared Strawberry plants in pots for forcing, the next chief consideration is a suitable place in which to force them. The Strawberry is in this respect, except in comparatively few garden establishments, left unprovided for in any special way, and many thousand plants are forced without what may be termed a Strawberry-house. Indeed it is a subject so accommodating that it can be forced in the pit, the Peach-house, the Vinery, and the Pinery, or by the aid of all these combined. At the same time, where there are many to be fruited annually, a house entirely devoted to themselves is not only better for them, but for the other plants and fruits with which they have so frequently to be accommodated in the same structure. Moreover, a Strawberry-house can be so arranged as to answer perfectly well for other things after the season of Strawberry forcing is over. Fig. 2

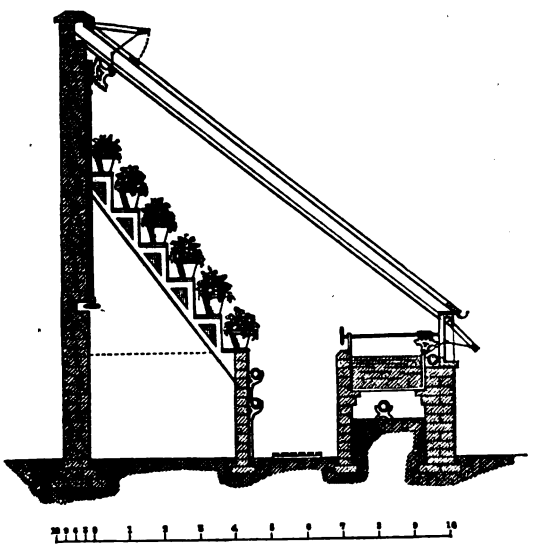


FIG. 2.

is what we would recommend as a very suitable and efficient Strawberry-house. The bed in front, supplied with bottom-heat, is an excellent place for starting early Strawberries. The back stage is supposed to be movable, if it should be considered necessary, so that, after the Strawberry season is over, Cucumbers or Melons may be grown in it, and such as Tomatoes or young Vines in pots—in fact, many things can be grown in the back bed after the removal of the stage. And in

Digitized by Google

the early part of the season, the bed under the stage is available for Rhubarb and Seakale if necessary, or the whole house may be devoted to plant-growing throughout the summer, and until required again for Strawberries. The command of such a house for Strawberries allows the gardener to give them the exact treatment required. Where there are many grown, it would be best to have two divisions of such a house, the one for starting them, and the other for fruiting them in. We shall, however, treat of Strawberry forcing in a general way, as if no such house were at command, as being most likely to meet the case of the greatest number of readers.

For very early forcing, it is of much importance to aid them with a gentle bottom-heat, which can easily be effected by plunging them in a bed of leaves or tan near the glass, where the bottom-heat ranges about 75°; and when they have started into growth, they can then be moved to shelves near the glass in early-started Vineries and Peach-houses, where no special house for them exists, and a succession of plants can take their place in the pit.

Time to begin Forcing, &c.—The time when ripe Strawberries are required must of course regulate the time when forcing should begin. It generally takes three months from the time the plants are started till the fruit is ripe. When forcing is commenced very early, say the middle of November, a week or 14 days more must be taken into the count. The best variety to begin with thus early is Black Prince, and plants of it introduced into heat about the 14th November will ripen their fruit the last week of February. Keen's Seedling, the next best early variety, takes 10 days more. Unless, however, where there is a large stock of plants and early crops imperative, it is not desirable to begin forcing so early. There is an amount of uncertainty and loss, generally amounting to nearly one-half the plants, in the case of those set agoing in November. A full half of the plants cannot be expected to set anything like a crop of Strawberries. In fact, those that are started before the last week of December are about the most uncertain crop that can be attempted, especially where there is no well-appointed Strawberry-house. Under ordinary circumstances, we do not recommend firing to begin before January, not only on account of the uncertainty of the produce, but because Strawberries ripened in comparatively sunless weather and a close atmosphere are not very well flavoured.

We will suppose the 1st of January to have arrived, the time when the earliest are in the majority of cases placed in heat; let the required number of the best plants in 5-inch pots be selected, all the brown and much-spotted leaves picked off them, their pots washed clean; and if the roots appear rather bare, firmly top-dress them with a

Digitized by Google

little fine loam and well-decayed cow-manure in equal parts. If, as has been already recommended, a light pit with a bed of warm leaves is at command, plunge the pots in such so that they may get a slight degree of bottom-heat. Keep the night temperature ranging from 50° to 55°, according as the weather is cold or mild; with sun-heat, 8° or 10° more may be allowed. A close stagnant atmosphere is most antagonistic to the Strawberry, consequently give more or less air every day, leaving a very little on all night when mild. Being plunged in moist leaves, watering will not be often required, but it must be attended to before the plants get too dry, so as just to keep the soil moist without being wet. As soon as ever the blooms can be discerned in the centres of the crowns, increase the heat a few degrees, but do not exceed 60° in mild weather. When the trusses are distinctly projected, remove the plants to a shelf near the glass in any structure where the night temperature ranges 60°, with 10° more by day. Avoid putting them where they will be subject to currents of cold air, or where, on the other hand, the atmosphere is close and very moist, such as a plant-stove. A Peach-house or Vinery is the best place in absence of a Strawberry-house.

When they begin to open their blooms, be careful not to be lavish with fire-heat should the weather be cold and harsh. Under such circumstances rather let the night temperature recede to 55°; and to prevent damp counteracting the process of fertilisation, leave a little air constantly in the house, and go over all the blooms that are ready, and fertilise with a camel-hair brush at mid-day. Those which throw their blooms up boldly above the foliage will be found to set freely, while those that do not will not be so certain. The conditions most conducive to a successful set early in the season are,—as much light as possible, a regular supply of fresh air, a night temperature not rising above 60° nor receding below 55°, a moderately dry atmosphere, and just sufficient water at the roots to keep the plants in healthy action. Anything like stagnation of water about the roots of Strawberries when in bloom is most injurious, and consequently the pot should never be placed in saucers till after they are set, and then it is a questionable practice.

When the fruit are set and about the size of Peas the chief difficulty is passed. They may then have the temperature ranging from 60° to 65°, with 10° or 15° more with sun-heat. Water will be required more liberally and frequently at the roots. Unless for the later crops, when water is consumed with great rapidity, never stand the pots in saucers full of water. The best way in all respects is either to cut pieces of turf and lay below them on the shelves—into them the plants root and derive nourishment; or saucers with holes in them to let

Digitized by Google

the water escape, and filled with half loam and half old mushroom-bed manure, can be placed under them with equally nourishing results. The finest fruit we have ever seen in pots had 6-inch pots half filled with rich fresh soil placed under them, and into these they sent their feeders *en masse*. And the pots, being so far immersed in others, got protection from drying currents of air and sunshine.

A close stagnant atmosphere in dull weather must be avoided after the fruit is set, otherwise the fruit are apt to damp off or rot. A little air night and day at the highest part of the house should be constantly attended to. As the fruit swell and give every indication of a heavy crop, thin off all the smallest, leaving ten or twelve of the best-looking fruit. Every alternate time of watering give either soot, guano, or dung-water, till they show signs of colouring, when pure water only must be given; at all times the water should be milk-warm, and either rain or soft pond-water. When such has been practicable, we have generally moved them into another house, where the air has been drier, when the fruit were nearly ready to gather: a few days in such a place heightens the flavour and colour of the fruit, and it also makes room for bringing on a succession of plants. At all events, more and drier air should if possible be afforded them when colouring.

As the season advances, I need scarcely say that the precautions enforced above are not so imperative in the case of succession and late crops; still they must be adhered to, or results will be more or less uncertain. Those that ripen after the month of April can be freely removed to cooler and more airy places, in order to make them higher-coloured and better-flavoured; and such as ripen the end of May and June, before outdoor fruit are ripe, do well when removed to cold frames when colouring. In these they can have plenty of air by tilting the lights up back and front, or even having the frame supported up off the ground so that a current of air can play freely about the fruit. When the greater part of the fruit are colouring, they should not have more water than is just enough to keep the plants from drooping. The flavour is thus improved. Green-fly and red-spider are very apt to attack Strawberry plants when subject to fire-heat, especially in April and May; and to prevent red-spider gaining a footing, they require to be well syringed every fine afternoon after the fruit are set. And to the same end all checks for want of sufficient water must be guarded against. Green-fly is easily prevented and got rid of by fumigating with tobacco, but it must never be done when they are in bloom. It is a good plan always to smoke before the blooms open. One of the most forcible reasons against growing them in Peach-houses and Vineries, especially in the later part of the season, is the frequency with which they breed red-spider, which soon extends to the Peaches and

Digitized by Google

Vines. Gardeners are, however, generally obliged to adhere to the practice on account of the numbers of plants that have now to be reared under glass, and for want of a Strawberry pit or house. That good Strawberries are produced thus is beyond a question; but to ripen Strawberries on the top shelves of Vineries, the Vines must not be allowed to run up right to the top of the house, on account of the amount of shade which they throw over the Strawberries, and with which these will not succeed. So that in all cases where a division of glass can be devoted to Strawberries, it is much to be preferred.

The amateur who pursues horticulture more as a pastime and a pleasure, and who may only possess a pit or greenhouse from which frost is excluded, can, if he fancies them, grow a few dozen Strawberries on the shelves near the glass, where he can get a few dishes before they can be gathered outdoors. The same can be accomplished in a cold frame, where sun-heat can be taken advantage of, by being shut up early in the afternoons in April and May, and covered at night to prevent the heat from declining so low as in uncovered frames. A well-fruited pot of Strawberries makes a most pleasing dinner-table plant, with its green massive leaves and tempting fruit.

Some of those varieties, such as President and British Queen, which throw up their fruit on long and more slender footstalks, require to have their trusses supported, otherwise, as the fruit becomes heavy, they weigh down the stem; and it not unfrequently gets bent and bruised on the edge of the pot, and the fruit is thereby hindered from swelling so well. Where they are grown in rows in shelves, a good way of supporting them is to fix a few short stout stakes in every fourth or sixth pot, and run a piece of thick soft twine along, on which the trusses can rest on a level with the body of the plants; or each truss can be tied to slender stakes.

Immediately the fruit are all gathered the plants should be removed to cold frames or to some sheltered corner, where they can be protected from spring frosts, and hardened off preparatory to their being planted out for bearing outdoor crops, which they produce in first-rate style the following summer, and sometimes a few that same autumn.

Packing the Fruit for being sent to a distance.—In those days of steam and express trains, it not unfrequently happens that forced Strawberries have to be sent hundreds of miles to the dessert-table, and much of their safe and successful transit depends on the manner in which they are packed. We have been in the habit of sending them from Scotland to London three times weekly, and by the following method of packing they have been received without a bruise: They were packed in square boxes 4 inches deep, divided

Digitized by Google

into four compartments. In the bottom of each division was placed a layer of fine paper-shavings, then a layer of wadding, and over the wadding a sheet of soft, pliable tissue-paper, all firmly pressed down, the one upon the other. On this foundation, with a soft, fresh strawberry-leaf beneath and between each fruit, the Strawberries were packed. Over them were placed soft, young vine-leaves, then a sheet of tissue-paper, and then wadding and paper-shavings enough to fill the box as firmly without bruising the fruit as possible, as their safe carriage depends on their being packed sufficiently close and firm to prevent their moving when the box is moved. This is what may be considered an extra-careful way of packing. Generally they are packed in round or square boxes or baskets, with just leaves below and above them, and with ordinary usage they carry very well. But fruits sent by rail are often roughly handled; and when fine fruit are produced after months of careful culture, careful packing we should recommend as the gardener's finishing-touch. The boxes in which they are packed should be made of thin deal or tin, in which case two or three storys or layers of them may be packed into a stronger box.

Preparing Fruit for Exhibition.—In preparing fruit for exhibition a great amount of careful and skilful generalship is required. And, generally speaking, the grower who has a large number of plants to gather from on an exhibition eve has a very great advantage over the grower with only a few scores of pots, more so than in the case of any other fruit. For with the most careful thinning, it is well known to every Strawberry-forcer that each plant has generally one or two very large fruits, while the remainder are considerably less. Consequently, the more numerous the plants ripening fruit at one time, the more numerous will be the monster Strawberries. But size is not all on the exhibition-table; colour and flavour are also very important points, which can only be attained by free exposure to light and dry warm air. If Strawberries are grown with the intention of their being prize-takers, a fewer number of fruit should be allowed to each plant. Some may require being retarded in cooler houses, so as to retard the first and largest berries; others may require a contrary treatment, to bring them forward to match the retarded ones.

Most growers have their own way of setting up or dishing for exhibition. The most effective dish of Strawberries we ever remember of were laid singly in a flat square basket, filled nearly to the top with wadding and covered with tissue paper. On this surface the Strawberries was laid with a small space between each. Splendid fruits of any description can never have too much of each fruit seen, and in this way the eye takes in more of the individual fruits than

Digitized by Google

when dished in the usual way in a semi-globular form, the fruit laid in circles with a Strawberry-leaf between each, the outer row of fruits being the least, and those in the centre of the basket the largest.

Best Varieties for Forcing.—It is not always easy to pronounce dogmatically on the varieties that are best for forcing; we have experimented with scores of sorts, and came to the conclusion that there are not very many which possess all the qualities which fit them for forcing, and early forcing in particular. Keen's Seedling is perhaps more extensively grown than any other sort, and more generally accounted the best to grow for general crop. It, however, in some localities has proved a failure; but, so far as we are aware, this is the exception, not the rule. Black Prince is a most prolific bearer, and for very early forcing is decidedly the most certain, from its free blooming and setting qualities. We can confidently recommend for the earliest crops—*i.e.*, to ripen in the early part of March—Black Prince and Keen's Seedling. Prince of Wales is an excellent second or rather third early in the order of these three. For the latest crops nothing can equal in flavour the old British Queen, but it is not very prolific, and does not succeed well in many soils. Sir Charles Napier forces well, is large and showy, but rather acid. President is an excellent Strawberry, forces well and sets remarkably free. La Marguerite and Victoria are also very showy varieties. But had we to force many thousands of plants, we would still cling to our old favourites — namely, Black Prince and Keen's Seedling, the latter predominating. Then for late sorts nothing can be more satisfactory than Prince of Wales and President, and where it does well, British Queen.

SIMPSON'S PATENT "WORTLEY" CELERY COLLAR.

GARDENERS appreciate the importance of protecting Celery from the injurious influence of immediate contact from especially heavy soil in the process of blanching by earthing it up, and have had recourse to a variety of means for effecting this end, such as hay-bands, drain-tiles, &c. We have before us a very simple, and what we are certain must prove a very efficient, invention of Mr Simpson's of Wortley Hall Gardens, intended to supersede the appliances hitherto adopted in the blanching of Celery. It consists of stout brown-paper collars with a japanned hood at one end, and a row of holes at the other, into which in putting the collars round the Celery the hook is fixed. These holes are in a row extended to nearly half-way along the centre of the collar, the intention being that as the plants increase in thickness the hook pulls through one hole into the other, and so by self-action gives more room as it is required. We think very highly of this invention; and from its simplicity and cheapness, and the rapidity with which it is applied, we are certain it will supersede all other hitherto adopted modes in keeping Celery from the ills to which it is subject in most soils. It must also facilitate the process of earthing up very much, and we strongly recommend it to our readers as an appliance which, so far as we can judge, cannot fail to give satisfaction.

Digitized by Google

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

(*Continued from page* 121.)

EUPHORBIA JACQUINIFLORA.

THIS is another useful plant that comes into bloom when there is not much bloom of the same colour to be got. Fine wreaths of it are much admired, and in great demand for the hair. Not being so fortunate as "one of your correspondents," in the January number, as to have space to plant it out to train on a back wall, where it does so well, and is a grand sight when in bloom, we annually strike a quantity of cuttings, taken from the young shoots after the old plants have been cut back and made fresh growths of sufficient length, placing the cuttings in equal parts of leaf-soil and sand, sifted fine, and plunged in a brisk bottom-heat, with a bell-glass over them. They will soon begin to throw out roots, when the bell-glass should be removed, lifting the pot into a more airy situation for a couple of days before potting off. In the mean time getting a compost of equal parts turfy loam and peat, with a little silver-sand, getting it well mixed, and placed where it may be got as near the temperature of the house that the plants are in as possible, put three into a 3-inch pot, replacing them in a close pit for a short time, until they take with the change, when they can be placed on a shelf in the stove near the glass, or any structure with stove temperature. If the tops of each are nipped out, they will break lower down, three and four shoots each. When fairly started to grow again, let them have a shift into 6-inch pots, using the same compost, but adding a little rotten manure, still keeping the three plants in a pot. Let them be well attended to in syringing and watering; a little manure-water will be found beneficial after the pots are full of roots, more especially when the blooms begin to open.

By growing these plants in a pot and pinching them, from seven to nine shoots may be calculated upon. When these can be got in bloom from 1 foot to 18 inches in length, we find they are very acceptable all through the winter. By having two batches, and pinching one three weeks later than the other, a good succession may be got.

THE IXIA.

This is a beautiful bulbous plant, of easy growth, throwing up spikes, reminding one of miniature Gladiolus. They are of all colours and shades, and when in bloom, a good collection is very interesting, besides being useful to cut from. The best time to get them is in the autumn along with the other bulbs; as the individual bulbs are rather

Digitized by Google

small, six of a variety should be ordered, and put in a 6-inch pot. The same soil that is used for the other bulbs suits them very well. After potting, let them be put in a cold frame, where they can be protected from heavy rains and sharp frosts. Keep the soil moderately moist, when the pot will soon be full of roots, and the bulbs beginning to grow, when a portion may be transferred to a shelf near the glass, where the temperature ranges at night from 35° to 40°; if much higher, the foliage will get drawn and fall down over the pot, spoiling the plants for the season. When growing, let every attention be paid to the watering and airing, always aiming at short, stiff foliage. After done flowering, gradually withhold water, so that the the bulbs get well ripened for another season. When the foliage has ripened, let the pots be placed in a dry place out of the way of mice, until the following October, when they should be taken and repotted as before.

When the bulbs increase, and there are more than are wanted for pot-work, select a warm sheltered corner, thoroughly working the ground and giving a liberal dressing of rotten manure, and plant in beds 4 feet wide, putting four lines in a bed, with a path 2 feet wide between the beds, planting about 4 inches deep. If the weather should be at all severe throughout the winter, let a little dry straw, or, what is better, fern, be laid over them, but not so thickly as to induce them to start too early. When about 4 inches high, if the weather is at all dry, let them have a good soaking of manure-water. If, on the contrary, there is plenty of moisture, sprinkle a little soot and guano between the lines, when they will soon show the benefit by the dark-green and stiff foliage. The following are all good and showy varieties:—

Aurantiaca Major.
Bucephalus.
Brilliant.
Bella.
Longiflora Rosea.
" purpurea.
Ruby.
Crateroides.
Cyrus.
Conqueror.
Viridiflora.
Hemisphere.
Pallas.
Hybrida longiflora.
Joan of Arc.
Magnifica.
Morning Star.
Wonder.

A. H.—T.

NEW POTATOES.

To some who may have observed in certain provincial papers that new Potatoes were in the market during January, it may seem mysterious that such can be had in quantity equal in appearance to the best "frame" Potatoes in May. Having for many years supplied these "new Potatoes" from Christmas and onwards while they remained good (which is seldom the case after the beginning of March), I may now be able to speak fairly of their qualities. It may be remembered that a few years ago "The Squire's Gardener" wrote an excellent paper on Potatoes, and referred to "new Potatoes" grown by this method; but

Digitized by Google

as there are other practitioners coming yearly into garden practice who may not have read previous numbers of the 'Gardener,' to them this paper will not be words thrown away. I confess at one time writing a paper on a subject which was understood by a veteran (I believe still alive) who said he had written the same experience as mine forty years ago. As I had then not been in existence more than thirty years, I could not have read his remarks when they appeared, neither have I yet seen them; but my offence was in supporting an idea which was not new, and the result of my practice was endorsing what had been written ten years before I was born. But if we are all to stick to this idea, what are to become of the numerous young men who read to guide them in their practice, and have not in their possession matter which has been in print before their time? One of our most experienced writers remarks that "if we are to write nothing but what is novel, the sooner we burn our writing-desks the better and give it up." This, of course, does not mean sympathy with plagiarism. Nothing can be written too strongly against this mean practice, and we learn from a notice in the 'Gardener' for February that this evil still exists. But to turn to the Potatoes, we will refer first to the marketmen's system of growing them. About the end of July, or earlier, a piece of ground is chosen and planted in the usual way with an early kind of Potato. To turn in most money, round ones (which are heavy croppers) are generally chosen; but kidneys are far better for the purpose, and I have not met with any superior to Veitch's Ashleaf. A crop of Lettuce or other crop is taken off the ground by way of making the most of it, and in the autumn the Potatoes are well forward and have all the space to themselves. They are allowed to do the best they can till frost comes and cuts them down. A good coating of litter is spread over the surface to keep the tubers safe from frost, and after they are well seasoned with the earth (the flavour of which they strongly acquire) they are dug up and sold at a fabulous price to those who value novelty more than a good wholesome Potato. To keep them late enough for planting, they are spread thinly over a cool stone floor or similar position, which prevents the sets exhausting themselves with growth. Some years ago, in the south of England, an experienced nobleman's gardener was perplexed by his employers having weekly consignments of these "new Potatoes" sent down from Covent Garden. The taunts of the man-cook were more than he could bear. I learned this, and soon put my friend in a better way of producing "new Potatoes" than the system I learned when employed among market-gardeners, and no doubt he saved his noble employer a considerable sum which had formerly been spent on unwholesome trash.

The system I practise here, and before I came here, is to select a nice dry border well exposed to the sun; prepare it as for early Potatoes at the beginning of the season: the time of planting in Scotland is the end of June, and about the third week of July in England. Every encouragement is given to free growth: frequent stirring the surface is of great importance. When there is danger of frost a framework in a temporary way is erected, and if glass lights can be spared, so much the better. Their principal use is to throw off heavy rains. Protection from frost is given to keep the Potatoes growing as late as possible. The sunny position they are in finishes the tubers in fine condition; and when the tops die down, say in November, the ground is covered with dry litter or leaves to keep out frost, and wooden covers placed over the whole to keep the tubers thoroughly dry. At Christmas, or later, as good Potatoes can be dug fresh from the ground as in the month of July, with all the flavour of forced Potatoes, and much better than them in every way. The use of glass and wooden coverings to keep off rain is not indispensable, but materially im-

Digitized by Google

proves the qualities of the Potatoes. When cooked they should be floury and fine-flavoured.

I can endorse all that was said by "Gardener's Wife" in a late number of the 'Gardener' on cooking Potatoes. Though her system was not altogether new to me, I have had it proved by daily practice to be a good system. In some large establishments the cooking of Potatoes is often left to the scullery-maid, who may never have seen a Potato well cooked in her life, and the best results cannot be expected. M. TEMPLE.

WIRING OF FRUIT-WALLS.

I HAVE no wish to dissuade any one from adopting this plan. It has several advantages, and I have seen good trees on wired walls, but it was in warm situations.

Here, however, in a late and cold district, my own experience has been of a kind to deter me from having anything to do with wired walls out doors, for Peaches at least.

In the autumn of 1870, I had a piece of a south wall which might eventually be covered in and wired for Peaches with galvanised wire. In October the Peach-trees—good-sized trees from our late Peach-case—were planted and tied in. Nothing particularly amiss was noticed or anticipated till we came to prune the trees the following February, when we found that about one-fifth of the young wood was either dead or dying; in fact, almost every shoot that was actually *in contact* with the wire. Wherever this had happened the shoot was killed through, and discoloured as if it had been pressed against a hot wire—and, of course, all the upper portions of these shoots were done for. I was naturally much annoyed at this discovery, and had all the trees untied and disconnected from the wires entirely, and no further damage was done at that time. It was perfectly clear to my mind that the cold wires had paralysed the shoots, where they had come in contact with each other, and this at the time I thought was owing to the trees having been grown under glass previously, and to the severe winter they had passed through. I therefore determined to give them another year's trial, thinking a season out of doors might harden the trees a bit. All went well during last summer and autumn, till after the hard frosts we had about the end of November and beginning of December, when I examined the trees again, and found that the damage was greater even than in the previous year. I believe I speak within limits when I say that almost every shoot was killed through where in contact with the wires—the wound in every case beginning exactly where the wire touched, and extending about ¾ of an inch above and below the wire. In many places gum was exuding at the wound, and in a good many places the two-year-old wood was killed also. Altogether, I should say we lost a quarter of the best wood on the trees. After this I did not hesitate what to do, but pulled the wires out, and replaced them with a light wooden trellis. I had no intention of publishing these remarks at present, but have been induced to do so in consequence of the inquiries that have been made through the pages of the 'Gardener' by several of your readers anent this subject. Whatever decision they may come to, they may accept the above statement of facts as authentic. J. SIMPSON.

WORTLEY.

P.S.—I ought to state the trees were tied but loosely to the wires. The injury occurred just where the shoots had happened to rest on the wires.

J. S.

Digitized by Google

THE GLOXINIA.

FEW species of plants are more useful for decorative purposes than the Gloxinia. Being of easy culture, this, added to the variety of colour and profuseness of blooming, has gained for them a prominent position in our hothouses. When they are clothed with fine foliage and are removed to the greenhouse to expand their beautiful blooms, they make a fine display during the middle of summer, and last a long time in perfection. They are very useful for standing on the curb of a bed of Pines, a place where not many flowering plants will stand: if placed thus, they will enliven the appearance of a house when filled with those dismal-looking objects. When the Pines are syringed, care should be taken to let as little water fall on the Gloxinias as possible, as it will cause their foliage to damp. Some think that they are stove-plants, but they will bloom to perfection in a cool greenhouse, pine-pit, or vinery, as well as in the heat and moisture of a stove.

As the time is drawing near when the bulbs which were dried off and stowed away last year will require to be brought to light and placed under favourable circumstances to their growth for another season, a few remarks on their cultivation may be useful to some of your readers, and especially amateurs.

When raised from seed, February is the best month to sow in; if put off till later, the chances are against their forming good strong bulbs to stand the winter. The pan in which the seed is sown should be well crocked, and filled up to within an inch of the top with soil composed of two parts loam, one part peat, and one part leaf-mould, passed through a ¼-inch sieve, and sufficient sand to keep the soil open. The top part should be passed through a finer sieve, and made smooth and level to receive the seed. Care should be taken not to sow the seed too thick, for if many of them germinate they will be apt to damp off before they are ready to be pricked out or transferred to pots. The seed should only be covered sufficiently to hide it; if covered too deep they will take a long time to come up, or will perhaps never germinate. When all is finished the soil should be a little below the rim of the pot. After they have received a watering through a fine rose the pan may be plunged in a gentle bottom-heat where such can be afforded, but they will germinate equally well if set on the sand in a propagating pit where the temperature stands at from 68° to 70°. Cover with a bell-glass, and, being by no means difficult to grow, they will soon germinate. As soon as the young plants make their appearance the glass should be tilted up a little on one side, and air admitted by degrees till it is removed altogether

Digitized by Google

The pan should then be placed on a shelf near the glass and shaded from the direct rays of the sun. If they have come up thickly, they should be thinned out to prevent their damping.

When the plants are large enough to handle, they should be potted into 3-inch pots. If it is only intended to flower them, to procure the best varieties thirty or forty may be pricked out into a pan or box; but if they are to be grown on for the greenhouse, one in a 3-inch pot is sufficient. The same compost will do for them now as that in which the seed was sown, only the fibre should not be taken out of the loam or peat. After they are potted they should be placed on a shelf near the glass and shaded for a day or two. They will now require a moist stove atmosphere, and care should be taken in watering them never to water overhead, as it will disfigure the foliage. In a few weeks they will be ready for another shift: 5 and 6 inch pots should be used, according to the size of plant. The soil to be used will be the same as before, with the addition of some well-rotted cow or horse dung, which may be baked to kill the worms before mixing it with the soil. They should again be returned to a shelf near the glass in a house where the temperature stands at 60°, with less moisture than before, where they will soon begin to throw up their blooms. When the first flower expands they should be transferred to the greenhouse, or whatever house they are required to grace with their beautiful flowers. They will now, with proper care and attention, yield a succession of blooms for three or four months, and no flower in the greenhouse will be admired so much as the Gloxinia.

When their flowering season begins to draw to a close—and if they are required to flower early next year, the sooner they are put to rest the better—water should be gradually withheld till they are completely dried off. They should not now be thrown into any old shed that is found most convenient: upon their proper treatment now will depend their next year's success. They should be carefully stowed away in a shed where the temperature will not fall below 50°. If they have been treated according to the foregoing they will have formed fine bulbs for next year.

When the spring arrives the time to start the bulbs will depend upon the time they are required to flower. If wanted to flower in the month of June or July, March will be the best month to pot the bulbs. When the time for starting them arrives, they should be shaken out of the old soil and put in heat, so that they may make a growth before being potted: 4-inch pots should be used, and if large specimens are required, 2 or 3 bulbs may be put into a pot. The soil to be used should be composed of fibry loam, leaf-mould, sand, and some cow or horse dung. If the soil be rather moist when they are potted, they will

Digitized by Google

not require water for a few days, but a slight dewing will be beneficial to them. In a few weeks they will have fine foliage and their pots full of roots. The best of them should now be shifted into 6-inch pots, and where 2 or 3 bulbs are together, 7 or 8 inch pots may be used. They should again be returned to a temperature of 55° or 60°, where they will soon begin to throw up their blooms. When the first flower begins to expand they should be removed to a cool greenhouse, where they will open their blooms, and make a fine display for a length of time. When finished flowering they should be dried off and treated as before. If it is desired that the stock of any particular variety be increased, it may readily be done by dividing the bulbs or by the leaves. If the leaves be used, make three or four cuts on the midrib of the leaf, place it on sand, keep close and moist, and it will emit roots at every cut, and form bulbs for next year. The Gloxinia is well worthy of a better place in our greenhouses than it at present holds.

HEROS.

TOBACCO.

TOBACCO is said by some to have been first brought to England as early as the year 1565 by Captain (afterwards Sir) John Hawkins. There seems a strong probability of this being the case, especially when it is remembered that he was the first Englishman who traded to the West Indies as a slave-trader, carrying the natives from the coast of Guinea, and selling them to the colonists of Hispaniola. But it was not till twenty-one years later, in 1586, that it can be said to have been really introduced, when the crew of the fleet under the command of Sir Francis Drake brought it with them from Virginia, seeds being first brought in 1570. Raleigh and other courtiers of the "good Queen Bess" soon made smoking common; and from that time till this there seems to have been an ever-increasing demand for it in this country, the tobacco account of 1869 being no less than £11,000,000. Both in Asia and Africa it is grown extensively, and more or less in the warmer countries of Europe; but in this country, for Excise reasons, its cultivation as an article of commerce is rigidly prohibited, half a pole only being allowed for medicinal purposes. Whether the Excise officers "wink" at its being grown in gardens or not, I cannot say; certainly in this case there is a pretty wide latitude allowed. I have seen a "gauger" enjoying the sight of "real tobacco growing" in a garden without any seeming qualms of conscience as to its being a contravention of the country's laws. This genus—Nicotiana, so named after Jean Nicot, who first introduced it into France in 1560—contains a goodly number of species, many of which are said to be

Digitized by Google

very ornamental; by far the larger number are white or pink flowered, and all, with the exception of three or four species, are annual. The Virginian (N. tabacum virginica) is one of the best to grow for the gardener's purposes; the leaves are large, flowers a light pink, an annual, and growing about 4 feet in height. The seed may be sown about the middle of March, a 7-inch pot being large enough: sow thinly in a light and moist compost, covering them very slightly: the seeds germinate quickly if placed in a gentle hotbed. Directly the seedlings are large enough, prick them off thinly into boxes, and keep growing on gently in a cold frame. In the northern parts of Britain, the end of May is early enough to plant them out; in the south, the middle of the month is more suitable—keeping pots in readiness to place over the plants on cold and frosty nights. A space of 3 feet each way ought to be left between the plants, the ground having been thoroughly worked to the depth of a couple of feet. Tobacco is the most exhaustive crop that can be grown—when burned, 20 per cent being left as ashes; so that the ground occupied with it requires a good manuring before another crop is put on it. The plants require the support of strong stakes. It is the practice of some to pick off the flowers and smaller leaves, of others only the flowers; and some pick off neither, but leave the plant to grow untouched. By the end of August or beginning of September "curing" will have to be commenced: the most expeditious mode is to cut them over just above ground; hang them up in a Mushroom-house, keeping at first a temperature of 70° by fire-heat, increasing it to 90°; in about a fortnight the leaves will be completely killed. Firing must be discontinued, and the floor kept constantly moist. As soon as the leaves become limp, they must be separated from the stalks and packed away in tubs till required for use. They do very well if hung up in lofts to dry, but require much longer to cure by this mode. They may also be dried by picking the leaves off the stalks, and laying them out in cool houses in a position shaded from the hot mid-day sun; but the rest of the leaf must be first stripped from the midrib, which takes longer to dry: as soon as they become brown, pack them away in tubs. A simpler mode of rearing them than that here recommended has been successfully pursued by my brother: the seedlings were raised in a hotbed, and, when large enough, pricked off in a bed prepared for them: sticks were placed over them to support coverings which were thrown over them on cold nights, and planted out as here recommended. The bed was in a thoroughly sheltered position.

According to Hampton Brewer, Esq., L.R.C.P., &c., "the active principles of Tobacco appear to depend upon three substances, a volatile alkaloid, a volatile oil, and an empyreumatic oil. The liquid

Digitized by Google

volatile alkaloid (to which the name of Nicotia or Nicotine has been given) is colourless, with an acrid smell and burning taste, and has more or less of an oily nature. The poison exists not only in all parts of the plant, but also in the smoke given off during the process of burning. Fire does not destroy it. The concrete volatile oil known as tobacco camphor also exists in all parts of the plant and in the smoke. The empyreumatic oil is, as its name implies, produced during the burning of Tobacco. It is acrid and disagreeable to the taste, narcotic and poisonous."

When the Tobacco is wanted for fumigating, it requires to be slightly damped two or three hours previous to using it. Leaving "patent fumigators" out of the question, there is nothing better for the purpose than a "chaffer" made of sheet-iron, 10 inches in depth and 8 in diameter, having a hole near the bottom for the purpose of clearing the ashes through the bars which form the bottom, and also for the insertion of the nozzle of a pair of bellows; three legs 6 inches long for supporting it, and a handle for moving it about, complete the "machine." Bellows will be but rarely wanted if a kindling of glowing coke or charcoal broken up small is put in, with a handful of dry Tobacco atop to make a start with. Nor is it in the slightest degree necessary to dance attendance on it whilst burning; a little experience will soon enable any one to keep it going, and at the same time attend to other work, such as looking to fires, shutting up houses, and such-like. I have seen the use of a sieve advocated by some one (an amateur, I think) for fumigating, a layer of glowing cinders to be spread over the wire, and so much Tobacco as considered necessary to fill the house with smoke placed on them, leaving it to take care of itself. Those who do not want tender "subjects" destroyed, would be as well to let this plan alone.

A useful article for gardeners to have by them is Tobacco-liquor; it is indispensable for the destruction of thrips infesting plants out of doors, and many use it in home-made insecticides and "paints." To manufacture it, place some leaves in a pail, just covering them with water. After a time squeeze all the juice possible out of the leaves, strain off the liquor into something, and place the leaves back to soak again, repeating the operations as before. It is generally well known that snuff is manufactured from the stalks of tobacco, but doubtless it would not pay gardeners to do so for the requirements of the garden. Snuff is very useful for the destruction of aphis on plants which stand out of doors, and impossible to have removed inside to be fumigated; however, it ought not to be used except in cases like the above mentioned, as, apart from its dirty character, it is not near such a strong poison as tobaccco, losing as it does, in the process of fer-

Digitized by Google

mentation, a large portion both of its nicotine and Tobacco camphor,—the empyreumatic oil, as a matter of course, being entirely absent. Powdered Tobacco is advertised as a substitute for snuff, but I have had no experience of it. A point, which ought to be made a principle of, is to smoke directly green-fly is noticed, as their powers of reproduction are very great, especially on fast-growing plants.

R. P. BROTHERSTON.

GREENHOUSE CLIMBERS.

I HAVE thought to note a few greenhouse climbers that are grown for their flowers. Some of the readers of the 'Gardener' may want to fix on one or two, and those that I will mention in this paper I can safely say should prove a good selection of climbers.

Firstly, I will mention Clematis Jackmanii, for this reason, that although it is quite hardy, it makes the finest pillar plant that I have yet seen. June is its time of flowering, when it is a perfect sheet of the most beautiful violet-purple flowers. It continues in bloom for nearly two months. The only fault that I have to the appearance of this plant as a conservatory climber is, that it is deciduous. But still the profusion of its flowers in its season makes up for a good deal.

Rhyncospermum jasminoides has been long known in gardens, but still, for all that, it is one of the sweetest of flowering-plants, producing nice heads of small white flowers, from which doubtless arises its specific name. Its season of flowering is also in the summer months. It is sweet-scented, and is well adapted for a pillar.

Lapageria rosea, which is well known now, is a plant that is indispensable wherever a choice collection of plants of whatever kind is sought. It does well as a pot-plant trained on an umbrella trellis, from which its rare-looking red bell-shaped flowers hang so gracefully. When used as a climber, it is better adapted for having its shoots trained up and spread out just under the roof of the house. It flowers later in summer, and continues on flowering through autumn, and sometimes the greater part of the winter. Fine bells of it may be cut for the hair at Christmas, which, from their waxy texture, last a long time.

Tacsonia Van Volxemii also deserves a place in all collections of beautiful flowering-plants. In most respects it resembles the well-known Passifloras, and it requires a similar position to P. cærulea. It sometimes flowers through the greater part of the year, is of the most showy red colour, and it is always an ornament to the flower-basket.

Bignonia speciosa is a very elegant climber for a large house. If a plant is wanted to flower earlier in the season than any that I have yet named, this is a very good one. It has long shoots of light-coloured flowers, which hang gracefully from the roof of the house. Excepting when it flowers, this Bignonia is not so ornamental; but the same remark may be applied to a great many highly-valued subjects of the garden.

Plumbago capensis is often grown as a pot-plant, but when it is used for furnishing a conservatory pillar it is invaluable. Its flowers are too delicate to be used much for cutting. When grown as a pillar-plant, it should not be pinched too closely, but be allowed to grow wavy in a graceful manner.

Digitized by Google

Its season of flowering is from summer till autumn. Colour, rare-looking light blue.

Fagelia bituminosa, produces inflorescence resembling Lotus corniculatus, but the flower-heads are a good deal larger. It is a difficult thing sometimes to get a collection of climbing plants to please in all respects. This plant is not such a vigorous grower as most climbers, but it soon reaches the height of several yards. It is best adapted for a pillar, or for being trained in front of a bare piece of wall.

Cobœa scandens variegata is well adapted for covering any extent of iron girders, bars, and suchlike work, for which purpose it is much used. It is grown for its foliage as well as for its flowers, being preferable to the green-leaved form. Its flowers are of a purplish colour, are borne singly; and in shape they somewhat resemble Gloxinias.

Lastly, I will name Passiflora cærulea, which may be too common to require any note; still it is one of those plants that can hardly be dispensed with, needing no description from me. R. M.

NOTES ON FLOWER-BEDS.

IT is now nearly time to be thinking of what will be put in the different beds this summer, in the way of bedding-plants. Perhaps some of your readers may say, "Oh, it is too soon to think about that! Why, the spring bedding is not in perfection yet." But I have found, by planning some months before the time comes for planting out, what I shall put this season in that bed, and what in this one, that when the time comes I have my plan, and know what is to be put in each and every one; whereas, if left till the last, some very fine week is sure to come, and you will be in a hurry to get your plants out, and you will not have the time to think, Will this look well beside that? and so on.

Now when I am planning what I shall put in my beds, I always count how many it will take to each, so as to see how many I have towards it; or if I come short, how many I will require to make up my number. This is a good plan I have found (as some beds take a great many more plants than you would suppose when looking at them), as it is very provoking to find you are short of your number when filling your beds. I will mention a few of those I planted last season, and also some I saw, as perhaps they may be a hint to some of your readers who wish for a little change, and may not have had any of the hereafter-mentioned style of beds in their gardens. I shall begin first with some of my own that looked best, and then take those I have seen and most admired.

We have in the centre of the back lawn a very large circular bed. This the season before last I planted in the Italian style of rings, and last season in the form of a cross. The season I planted it in rings I began with a large clump in the centre of Centaurea, then a ring of

Digitized by Google

Pelargonium Excellent, next to that Iresine, then a ring of Calceolarias, next Christine, then Madame Vaucher, the next Crystal Palace Gem, outside of that a row of blue Lobelia, followed by Golden Pyrethrum, and last of all a row of Echeveria secunda. It looked as well that season as I have ever seen it. Last season, as I said before, I had it in the form of a cross. The cross was formed of a band (18 inches wide) of Christine. Right in the centre, where the cross met, or rather the centre of the cross, was formed of a large clump of Glair. The cross was edged with Iresine, then of course there were four triangle corners left; these I filled in as follows: next to the Iresine I put a line of Madame Vaucher, then I filled the remainder of the triangles up with Mrs Pollock, and all round outside of all I put a band of bright-blue Lobelia. It was a very showy bed. We have also a number of small circular beds: in some of these last season I had different Pelargoniums, such as a bed of Mrs Pollock, another of Sunset, one of Artemus Ward, and some of Crystal Palace Gem, Cloth of Gold, &c.; others of light or silver Pelargoniums, like Italia Unita, Mable Morris, Burning Bush, and suchlike. I edged them all with a broad edging of Lobelia. I kept the blooms picked off the Pelargoniums, and the effect when the sun was shining full on the beds was very fine indeed. I also had two heart-like shaped beds; the centre of one was formed of Calceolarias, and round it a band pegged down of Scarlet Verbena. The centre of the other was of Christine, with a band of Purple Verbena. Both looked very gay. I also had some small round beds of Lady Plymouth, with edgings of Lobelia. The blue and white looked very light and elegant. My ribbon-borders I did last season with the following:—at the back I had a row of good large Fuchsias, next a line of Perilla, then fancy Pelargoniums, next a row of Pelargonium Lord Palmerston, then Madame Vaucher, after that Christine, next Cloth of Gold, and then Lobelia.

I will now mention a few I saw down in Somersetshire last summer, which I remarked as being very tasteful and highly effective. One was a large star; the centre was formed of Mrs Pollock, the points were Lobelia, with a deep edging of Cerastium tomentosum. There was also a group formed of a circular centre, and round it four triangular-like beds. The circular was Amaranthus, two of the triangle beds were Lady C. Grosvenor, with a broad edging of Calceolarias, and the other two were composed of Flower of the Day, edged with dwarf blue Ageratum. There was also another group in just the same style, only two of the triangle beds were Christine with purple Verbena edging, and the other two Calceolarias with an edging of Iresine. And now for the foliage beds. Some were of Centaurea, Iresine, and Cerastium mixed. One was a large circle of Coleus, with a broad band round it of Centaurea. The effect

Digitized by Google

of light on this bed was truly charming. Two others were of Golden Pyrethrum and Alternanthera amabilis. They were both round beds, but planted so as to form a star—one, the Alternanthera, on a ground of Golden Pyrethrum, the other a star of Golden Pyrethrum on a ground of Alternanthera. They were two of the most charming bits of carpet bedding I have ever seen.

I am sure if any of your readers should feel inclined to try the effect of some of the beds I have mentioned, they will not feel disappointed with the result; and I hope they will follow my example in the way of planning what they will put in their beds some time before they intend planting them, as I am sure if they do this one season they will feel the advantage of it, and always continue doing so. A. H.

UPPER NORWOOD.

GARDENERS' WAGES.

ALTHOUGH strikes are resorted to nowadays by mostly every class of industry as a means to obtain an increase of wages, still the system is an evil one, and is considered as such by all proper-thinking persons. It is a problem yet to be solved whether those people who have received a higher rate of wages of late years, are any better morally and socially now than they were in former times. It is an indisputable fact that they might be better, and that the frugal portion are better off there can be no doubt; and it is every one's legal interest to try and better his social condition when trade is prosperous and capital plentiful.

Gardeners are now calling meetings, passing resolutions, and, if these resolutions are not acceded to by their employers, they are going out on strike. What a mistake! gardeners have not the same chance to make their employers comply with their wishes, by going out on strike, as other classes of operatives have; when these operatives cease to work, their employers' income ceases too, and hence an amicable agreement is arrived at between employer and employed.

Gardening is a luxury, and therefore gardeners have no such chance of obtaining their object by striking as operatives have. Gardeners are but a poorly-paid class, and are much in want of their social condition being ameliorated; but gardeners' wages will ever depend upon the supply and the demand of good men, and the taste of proprietors of gardens, and the sum that they are disposed to lay out on them.

I would therefore urge upon young gardeners to reconsider their resolution of going out on strike, and strike against nothing but the waste of their leisure time, which they should be diligent to improve by instructing themselves in the theory of their profession, as the theory and the practice should ever go hand in hand, and to have a thorough knowledge of which is what constitutes a highly-qualified person to undertake a responsible position in life, that will yield reward for industry. For gardeners to strike is an utterly hopeless way of raising their social condition; for when an employer is in want of a gardener, he is generally at a loss to know whom to choose out of the number that generally apply for the vacant situation. Such must be a fact patent to all who hold good gardeners' places, and such a fact clearly demonstrates the fallacy of attempting to force employers of gardeners to submit to strikes.

Digitized by Google

Gardeners' duties are of a nature that devolves upon them a very great amount of anxiety and care, to attend to all the various things that require a regular season of input to have a regular season of supply, which is the great end of their calling; and to manage such matters efficiently, necessitates a thorough practical knowledge of the general routine of the year's work. Now for gardeners to strike, and place all men on a level of wages, is quite erroneous; for there are good, bad, and indifferent men in all classes of society; and to put the bad workman equally on a level of wages with the good workman, is a thing that never should be. Every man should be paid according to his abilities, and the interest he takes in his master's interest. Gardeners are, most decidedly, entitled to a reasonable increase of pay, as well as every other class of society; but they should temper with discretion their demands upon their employers, and there is not the least doubt but that their request would be acceded to with pleasure and respect.

I have been led to make these few remarks by observing lately in the 'Daily Scotsman' a letter from Sir W. Gibson-Craig, Bart., of Riccarton, anent under-gardeners' wages in general, and that of two of his journeymen gardeners, who had requested of him an increase of pay of 5s. a-week, and a half-holiday every Saturday; and that if these terms were not immediately complied with, they would strike work. The demand cannot be characterised as anything else but grossly absurd, and calculated in a high degree to evoke the resentful answer that was sent in reply. The ill-advised nature of these two men's document has brought them into ridicule by him* on who they were depending for their sustenance; and, I am very much afraid, to a more or less degree upon the class to which they belong. That gardening is a fine art no one can deny, and that the acquisition of a perfect knowledge of all its different branches is no small accomplishment to be possessed of, and that possession can only be attained by self-denial and indomitable industry by all those who enter upon the profession without previously being possessed of a classical education, a thing entirely beyond the reach of labouring classes.

A. Kemp.

Keithock.

GRAND INTERNATIONAL FRUIT AND FLOWER EXHIBITION,

Under the auspices of the Glasgow and West of Scotland Horticultural Society.

To be held in Glasgow on the 11th, 12th, and 13th September.

The prize schedule of this exhibition has now been issued, and prizes are on a liberal scale, in this respect more than equal to any that have ever been offered. There are prizes of £20, £15, and £10 for collections of twenty sorts of fruit, in which there is ample latitude allowed for Grapes, six varieties being admissible. For sixteen sorts of fruit, with only one condition—the exclusion of Pines—£12, £8, and £4 are offered. Eight varieties of Grapes, one bunch of each, are to be rewarded with £10, £6, and £4; while numerous prizes of £3 and £2 are offered for two bunches and one bunch of various sorts of Grapes. And other prizes are on a similar scale, among which rewards are offered for "one bunch new Grape in commerce six years prior to show." We think it a pity that more recently-introduced varieties should be thus excluded. No prize is to be given for flavour unless the bunch weighs not less than 1½ lb. We doubt if this will not exclude such as White Frontignac, Chasselas Musque, and Duchess of

* The course adopted by the two young men at Riccarton was very imprudent; but 13s. a-week, which their employer seems to think enough, is surely pitiable remuneration for a journeyman gardener.—Ed.

Digitized by Google

Buccleuch in the whites. The exclusion, however, of such miserable apologies for bunches as have been exhibited for flavour prizes, is quite commendable; but we think 1 lb. would have been a standard quite high enough, and is a respectable weight for Frontignacs and C. Musque. There are classes for fruit from all parts of the world. £20, £15, and £10 are offered for the premier collections of plants, and numerous other prizes for plants, cut flowers, and vegetables on an equally liberal scale—embracing classes for gardeners, amateurs, and nurserymen, as well as open classes. A footnote, which states "that no party will be allowed to compete without showing their ticket of membership," is, we fear, calculated to mislead at first sight. Some may suppose, as we did, that it means membership of the Glasgow and West of Scotland Horticultural Society, while it means membership of the International Exhibition, which membership is constituted by paying 2s. 6d. of entry-money—a tax on competitors for which no doubt the framers of the schedule have seen a reason. If the extent and character of the gathering corresponds with the liberality of the schedule, it will be a sight worth seeing.

BROUGHTY-FERRY.—GARDENERS' WAGES.

YESTERDAY evening, a meeting of gardeners employed by private gentlemen was held in the Public Hall, Broughty-Ferry, to consider the present position of their wages. There was a good attendance. Mr Wm. Thomson occupied the chair. He said it had always appeared to him something anomalous that the remuneration to gardeners had always been so low, considering the time and attention which they had to devote to the learning of their trade. An ordinary mechanic learned his trade in five years, while it took a gardener almost double that time. He believed that the cause of the remuneration being so low was because the supply of labour had hitherto been in excess of the demand. He contended that a gardener required far more skill than an ordinary mechanic, because the latter had machinery to do the work and had merely to superintend it, and that only for 51 hours; while the gardener had to work from Monday morning to Monday morning, and that with continuous physical effort. The gardeners of this neighbourhood should do nothing that would tend to lower the taste for horticulture among the wealthy men of the neighbourhood. He thought it would be a horticultural calamity if any matter of dispute arose between employers and employés. Mr Irvine moved the first resolution:—"That this meeting is of opinion that owing to the increase of price of every necessary of life, and keeping in view that all classes of working men are getting their wages advanced, it is time that all gardeners employed by private gentlemen should have their wages advanced 4s. per week." Mr Macdonald seconded the resolution, which was unanimously agreed to. Mr Black proposed the second resolution:—"That this meeting resolve that each should apply respectfully to his employer for the advance stipulated, within twenty days from this date." Mr Black contended that there was no reason why gardeners should not participate in the general prosperity of the country. He would deprecate anything that would result in a strike, but it was their duty to themselves, their families, and their employers to endeavour to get their rates of remuneration increased. Mr Bryson seconded the resolution, which was unanimously agreed to. Mr Stewart moved the third resolution:—"That a meeting be held this day month, when all gardeners in the districts will be expected to attend and report how

Digitized by Google

their proposals for an advance of wages have been received." It was Mr Stewart's opinion that their employers were astonished at them not seeking more. Mr Milne seconded the resolution. Mr Barnes moved the fourth resolution:—"That this meeting hopes that the employers will see the necessity of granting this advance at once, irrespective of yearly engagements, so that the men may be able to meet the high rates of the necessaries of life." Mr M'Lauchlan seconded the resolution, which was unanimously agreed to. Mr Easton moved the fifth resolution:—That this meeting cannot separate without an expression of regret that men designated gardeners are advertised for to work in gardens, feed pigs, milk cows, feed poultry, and do other menial duties, and considers that such men ought to be designated gardeners' labourers, and that they tend to degrade the position of real gardeners." This motion was carried with applause. The usual votes of thanks terminated the proceedings.

COCHLIOSTEMA JACOBIANA.

This being a plant of recent introduction, perhaps few of your readers have had an opportunity of flowering it or seeing it in flower. It so happens at present that we have a plant in flower here with nine spikes on flower-stalks up. It is not my intention to enter into details, or to give a minute description of it, only I have been repeatedly informed by visitors who professed to know more of the plant than I, that I would feel disappointed on its coming into flower, as it did not push its flower-stalks sufficiently high to be effective. I am glad to say my opinion is the reverse, and when well grown it cannot fail to give satisfaction.

The noble outline of this plant draws more than its share of attention in the stove throughout the season. Its foliage is exceedingly handsome, being from 3 to 4 feet in length by 8 inches in width, of an oblong-lanceolate form, of a lively green colour, branded with a narrow margin of purple. The first appearance of the flower-stalks is seen emerging between the plant and soil from the eyes at the collar of the plant. The next tier of flowers is from the axils of the bottom leaves, and is stronger and higher than the first flowers. What time it will continue to flower I am not in a position to say: it is now a month since I observed the first, and they are pushing stronger than when first observed. The plant was procured from Mr Williams's Paradise Nurseries in October 1869,—a small plant in a 5-inch pot; now in a 16-inch, measuring 15 feet across as it grows, and some of the leaves when straightened out nearly 4 feet. It was potted in equal parts of loam, leaf, and peat, with a good dash of white sand. The pot should be drained to one-third of its depth, as it requires a copious supply of water.

J. Hunter.

Lambton Castle.

Obituary.

We are very sorry to have to announce the sudden death of Mr William Osborne, of Fulham Nursery, so very soon after his brother's death. The latter died January 28th, and the former March 7th. Mr William had, like his brother, secured the high respect and esteem of all who knew him, and the sudden removal of the two brothers is much regretted by a wide circle of friends

Mr Thomas Ingram, late of the Royal Gardens, Windsor, died on March 9th, at Upton Lodge, Slough, at a very advanced age. He was appointed to the Royal Gardens in 1815, which position he filled until a few years ago, having during that time served four Kings and Queens of England. He was a gentleman much esteemed by all who knew him, and was a most successful horticulturist and raiser of new fruits and flowers. Few men have filled such a position for upwards of half a century, and few men have been more highly esteemed.

Digitized by Google

HORTICULTURAL EXHIBITIONS.

THE ROYAL HORTICULTURAL SOCIETY, March 6th.—There was again a good Show, though scarcely equal to the last, especially as regards the floral subjects for which classes were provided. The Camellias, in particular, by no means came up to our expectations, the plants not being of any considerable size. Messrs Lane, of Great Berkhamstead, had the first prize for six well-bloomed plants, exhibiting in addition a collection in small pots. In Class 2, for twelve cut blooms, there was no competition; and in Class 3, for six cut blooms, Mr Potts, gardener to J. Knowles, Esq., Heaton Grange, Bolton, had a first prize for a very good stand. Mr W. Paul, of Waltham Cross, sent a fine collection of cut blooms not for competition.

There were classes for shrubs in flower, and for the Lily of the Valley, but no exhibitor came forward. Of early Grapes there was likewise no exhibition, but of late Grapes some extraordinarily fine bunches were shown, and notably that which gained the first prize. It came from Mr Potts, gardener to J. Knowles, Esq., Heaton Grange, Bolton, and was Alicante, large in bunch, closely set with full, plump, jet-black berries, beautifully covered with bloom. Mr Sage, gardener to Earl Brownlow, Ashridge, was second with Lady Downes, very fine; and Mr Bannerman, gardener to Lord Bagot, Blithfield, third with the same kind, also in excellent condition. Mr Osborne, Kaye's Nursery, Finchley, sent Alicante, good; Mr Donaldson, gardener to Lord Chesham, the same kind, very fine; and Mr Hudson, gardener to J. C. Imthurn, Esq., Champion Hill, Camberwell, some fine Lady Downes. For Asparagus, Sea-kale, and Rhubarb, one dish of each, Mr G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, was an easy first with splendid Rhubarb, fine Sea-kale, and large Asparagus. Mr J. Bray, gardener to W. A. Sanford, Esq., Nynehead Court, Wellington, was second with good Rhubarb and Sea-kale, and fine Asparagus; and Mr R. Gilbert, gardener to the Marquess of Exeter, Burghley, was third with fine Sea-kale and good examples of the other two subjects.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr Tegg, gardener to John Walter, Esq., Bearwood, sent specimens of a new white sprouting Broccoli, which did not receive the approval of the Committee. Mr Gilbert, of the Gardens, Burghley Park, Stamford, sent specimens of Snow's Winter White, and of Myatt's Cape Broccolis. Messrs Paul & Sons, Cheshunt, sent examples of a fine stock of Snow's Winter White Broccoli. Sir Walter Trevelyan, Bart., of Nettlecombe, sent dishes of Lemons, Citrons, and Oranges, which were much admired, and received a cultural certificate. Mr Sage, gardener to Earl Brownlow, Ashridge Park, sent a dish of very fine Keans' Seedling Strawberries, which received a cultural commendation. Mr F. Dancer, of Chiswick, exhibited a dish of Cox's Orange Pippin in fine condition; and although much beyond the season at which this Apple is usually kept, they were of excellent flavour. They were awarded a cultural certificate.

A pretty little variety of Maize, called Zea gracillima, was exhibited from Mr Benary, of Erfurt. Two smooth-leaved Cayenne Pines, weighing 6½ lb. and 5 lb. respectively, and produced from a plant not thirteen months old, were exhibited by Mr Miles, gardener to Lord Carrington, Wycombe Abbey, and received a cultural commendation. Mr Donaldson, gardener to Lord Chesham, Latimers, sent a very meritorious collection of Grapes, consisting of large and remarkably well-kept bunches of Mrs Pince, Gros Guillaume, and Alicante. They were awarded a cultural commendation. Mr Osborne, Kaye's Nursery, Finchley, sent three small but well-kept bunches of Gros Guillaume, and received a cultural commendation.

Floral Committee.—Mr J. Fraser in the chair. Messrs Veitch sent a fine collection of Orchids, including a magnificent specimen of Dendrobium Farmeri; a number of plants of Odontoglossum Alexandræ with grand spikes; Epidendrum paniculatum; Odontoglossum triumphans, very fine; O. Andersonianum, cream and brown; the hybrid C. Harrisianum, very fine; and an Oncidium with long twining racemes of large brown and pale-yellow flowers. Together with these were several fine Palms, an excellent specimen of Hippeastrum pardinum, and the pretty little Stenogastra concinna. Messrs Veitch also sent a fine group of Roses in pots.

Digitized by Google

From Messrs E. G. Henderson & Son, St John's Wood, came a good collection of Cyclamen persicum in several varieties, and a new Asplenium.

Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, again contributed a beautiful collection of Orchids, particularly noticeable among which were splendid specimens of Cœlogyne cristata, Dendrobium nobile, Cattleya Trianæ, Cymbidium eburneum with five large flowers; Brassavola glauca, Dendrochilum glumaceum, Cypripedium Lowii, very fine; Lycaste Skinneri, and Odontoglossum membranaceum.

Messrs E. G. Henderson sent a group of Caladium Princess Alexandra, with rose-tinged silvery leaves veined and edged with green. Messrs Rollisson, Tooting, sent a mixed group, in which were Vandas, a fine specimen of Cypripedium villosum, and several other Orchids; Araucaria Cunninghami glauca, and a pan of Primula nivalis, a charming little white-flowered species. From the same firm came also Calamus verticularis, a handsome Palm, which received a first-class certificate. Mr Herbst, nurseryman, Richmond, sent two large baskets of Lily of the Valley, beautifully grown and flowered. From Mr W. Paul came Waltham White Primula, with very large white flowers of great substance: this we have frequently noticed in terms of high commendation. Messrs Standish & Co., Ascot, contributed an extensive and beautifully-flowered group of Azaleas, Bouvardias, Spiræa japonica, Cinerarias, Hyacinths, cut blooms of Maréchal Niel Rose, &c. Mr H. Bennett, Manor Farm Nursery, Stapleford, sent several of the new Hybrid Perpetual Roses.

Mr Williams, Holloway, exhibited among new plants Toxicophlæa Thunbergi, a Natal plant with close heads of white flowers and dull green leathery leaves; also a magnificent specimen of Dendrobium Cambridgeanum, bearing a profusion of its rich yellow and brownish-crimson flowers. In the same collection as this were a very fine specimen of Lycaste Skinneri, Tillandsia Lindenii, its deep azure-blue flowers more lovely than ever, several Palms, &c. Mr Williams also exhibited white Chinese Primulas of a fine strain, and some excellent Cyclamens, both in colour and freedom of bloom.

From Mr Ware, Hale Farm Nurseries, Tottenham, came a charming collection of spring-flowering plants—such as the double white variety of Primula acaulis, Iris reticulata, Scillas, Dog's-tooth Violet, and many other genus.

From Mr Green, gardener to W. Wilson Saunders, Esq., came a fine variety of Imantophyllum miniatum, called Cooperii, richer in colour and with a finer truss than the ordinary form. Mr Green also exhibited the little white and pale-yellow flowered Eria obesa. Mr Masson, gardener to R. Milne, Esq., Viewfield House, Arbroath, sent a magnificent specimen of Phalænopsis Schilleriana, with two branching spikes covered to the height of about 3 feet with beautifully-coloured rosy blossoms, 207 in number. This splendid object received a well-deserved cultural commendation, and was recommended to the Council as worthy of a medal.

Messrs Paul & Son sent a collection of cut Roses, and Mr Meadows a wooden-ended and sided span-roofed hand-light, with sliding panes of glass, hinged so as to fold up.

First-class certificates were given to Messrs Rollisson for Calamus verticularis; to Mr Green for Imantophyllum miniatum Cooperii; to Mr Williams for Toxicophlæa Thunbergi; and to Mr William Paul for Waltham White Chinese Primula. Cultural commendations to Mr Masson for Phalænopsis Schilleriana; to Messrs Veitch for Dendrobium Farmeri, for their collection of Orchids, also for their collection of Roses; to Mr Williams for Dendrobium Cambridgeanum, for his collection of Cyclamens, Chinese Primulas, and group of Orchids; to Mr Denning for a collection of Orchids; to Messrs Standish & Co., and Messrs Rollisson, for groups of plants; to Mr Ware for spring-flowering plants, &c.; to Mr Herbst for Lily of the Valley; to Messrs E. G. Henderson for their collection of Cyclamens; and to Mr W. Paul for a collection of Camellia blooms.—*Journal of Horticulture.*

Digitized by Google

Calendar.

KITCHEN-GARDEN.

THERE are many seeds to be sown this month, and when weather permits, attention to this work must be given; but as we have repeatedly advised, rather wait a few days than sow in sodden ground; and if an opportunity does not occur in time, the heap of "waste soil" we have so often called attention to, will do wonders in securing kindly quarters for newly-sown seeds. Broccoli, Cauliflower, Cabbage, Brussels Sprouts, Savoys, Lettuce (both Cos and Cabbage kinds), should be sown soon. All, except the last-named, are better when the ground is not heavily manured. Rank growth in an early stage is not desirable. Cover them slightly in the drills, making the ground firm and smooth, taking care not to spread the seed when the work is going on. Sowing thickly is an evil to be guarded against. When young plants of the Brassica tribe are fit to handle, they should be pricked out a few inches apart, to cause sturdy growth. When the seedlings are in drills, they are less liable to injury from being drawn up weakly than when grown in beds. Lettuce requires good rich soil to do them well. They can be grown where they are sown, thinning them out, leaving the crop about 1 foot apart; and the thinnings may be planted out in a later position for a succession-crop. When planting out is done, neat drills (according to size of plants) may be drawn; and when a little growth is made, the hoe worked among the plants will level the soil nicely round their collars, and will act as a mulching. A good breadth of Beet may be sown towards the end of the month. Cool, moist, well-drained soil gives excellent flavour to this esteemed vegetable. Dry, poor, shallow soil gives tough, flavourless produce; and rank manure makes the roots fibry and forked. Drills drawn from 1 foot to 15 inches apart suit the small-topped kinds. The main crop of Carrots may be sown soon. The usual precautions for vermin may have attention, such as sprinkling the surface of the soil with gas-tar, dusting thickly with lime and soot, sprinkling guano occasionally over the ground, &c.; but with every precaution success is not certain. Turnips may now be sown in small quantities, at regular intervals. Wood-ashes, soot, and guano are troublesome to "fly." Spinach sown weekly in cool rich soil will give regular supplies. Not to waste ground, these short-lived crops may be sown between bushes, and more lasting vegetable crops. Chervil, Parsley, edible-leaved Beet, Salsify, Scorzonera, Chicory, and all kinds of hardy herbs, may be sown now. The roots may be treated like Beet, and cover the herbs according to size of seeds. Many failures occur from over-covering small seeds, and birds will be on the outlook for them. Red-lead is serviceable against the feathered depredators; but netting carefully is perhaps the surest protection against them. New Zealand Spinach may be raised in heat for planting out widely in rich well-worked ground; but when wanted for late summer and autumn supplies, it does very well sown in patches, where the single plants are to remain. Sweet Marjoram and Basil may be grown in heat, pricked off, and made ready for planting-out. Seed may also be sown under hand-lights for late supplies. Celery may yet be sown for main crops. When it is grown on steadily without severe changes in temperature, or uncheeked for want of water, there is less fear of "bolting" to seed. Plants pricked out in frames or other protection, with a few inches of rotten manure and 2 inches of soil over the surface of it, is a good preparation for Celery. When planting the young seedlings, it is necessary to slightly press the mould to the fibres, and the roots should not be doubled up. Ridges may now be prepared for early Celery a few feet wide (to hold three rows or more); and the trench well filled with rich solid manure, with abundance of water (liquid manure occasionally), are some of the more important requirements when good Celery is expected. Peas may be sown every ten or twelve days during this month. If soil is poor and dry small ridges may be made, well manured; and the Peas may be mulched when they are up and growing. Stake earlier crops before they double over. We never earth-up Peas, except to

Digitized by Google

keep them from excessive wet in winter. Peas not thickly sown require plenty of manure and abundance of moisture. Beans may be sown two or three times in the month for main crops. The dwarf kinds are useful for filling up small spaces where it is not suitable to grow larger crops. Keep up supplies of small Salad, such as Mustard and Cress of sorts; small Cress and Mustard is easily managed when grown under hand-lights, among fruit-bushes, or any spare corners. Protection, however, may yet be required; branches of Spruce or old mats answer this purpose. Radishes may require protection for some time if frost is severe. Rampion and Corn Salad may now be sown as demand requires. French Beans may be sown on a warm spot where they can be sheltered from frost. When early Potatoes are lifted from frames, French Beans may be planted in their place, and the frame will give protection from cold and damp; and when all is safe (perhaps late in May), the frame may be removed, to bring forward late crops of Cucumbers, or any other crop under glass. Seeds of ridge Cucumbers may be sown for planting out early in June; also vegetable Marrows and Gourds. When these plants are brought forward slowly, and not subjected to a high moist temperature, they are less liable to the attacks of disease. In some southern English counties the seed is sown on the ridges under hand-lights or glass-frames, and they are allowed to take their own way when the season is advanced. Rhubarb and Sea-kale may be sown, and roots planted. Plant Potatoes, keeping in mind that room for the tops should be left, so that the tubers when they form may not be excluded from sun and air. Jerusalem Artichokes do best in single rows. The "protection" we meant in last month's Calendar was from wind. When the tops break over, the roots cease to grow. Asparagus-seed may be sown, to be thinned out, or for fresh plantations. We prefer single low ridges about 2 feet apart, and the roots planted on them, and plenty of surfacing with rich well-broken manure. Though Asparagus is a hardy weed in this country, its nature is much changed by manures, and it is liable to suffer from frost, or much damp, when the roots are not active.

Keep all surfaces well hoed, and destroy weeds when young. Regulate borders, &c., with line and spade.

M. T.

FORCING DEPARTMENT.

Pines.—The early-started Queens will now swell their fruit more rapidly, especially if favoured with sunny weather, so that they can be shut up early in the afternoon, that the temperature may range to 85° for an hour or two, with a proportionate amount of moisture. Dew them overhead at shutting-up time through a very fine rosed syringe. Damp the paths frequently through the course of the day when the sun is powerful, to prevent an arid atmosphere. We do not recommend much increase in the night-temperature over that recommended in March. April nights are generally cold, and unless when the nights are mild, do not much exceed 70°, and let 75° be the maximum. These early Pines are generally required as early as they can be had for the London season, but we are no advocates for hard forcing by sheer force of fire-heat. The acceleration should be by day with sun-heat, when the fires should be comparatively low in the middle of the day, but quickened in time to maintain the requisite temperature at night, with as little fluctuation as possible. Pay particular attention to the state of the soil, and see now that their is more assimilation and evaporation going on, that no check results from either over-dryness or too much wet, but keep the soil evenly moist, and give weak manure or guano-water every time they are watered. We much prefer this to an occasional strong dose. As soon as ever these plants show suckers, go over them and remove them all but two to each plant. Any of the winter-fruiting varieties, such as Smooth Cayenne and Charlotte Rothschild, that start late in autumn or early in winter, will now be approaching maturity. Until they begin to change colour, give them the same heat as we have directed for early Queens; but as soon as they change for ripening, subject them to a circulation of dry warm air by reducing the moisture and increasing the amount of air on fine days, otherwise flavour will be deficient. We hear of many

Digitized by Google

Pines ripened through the past winter being black in the centre when cut; at this we are not surprised, seeing that the season has been unprecedented for clouds and rains, and the absence of sunshine — circumstances which place ripening Pines in the very condition likely to produce the defect named. Succession-plants shifted as directed last month should now be examined, and, if becoming dry, watered. A first watering is often deceptive in the hands of the inexperienced, for the water is apt to pass off through the soil at certain points without thoroughly watering it; consequently they must be examined after the first watering, and if it has not moistened the soil regularly, they should be watered again the following day. Let the water always be at a temperature of from 80° to 85°. While recommending this thorough watering, beware of keeping the soil too wet while as yet the roots have not taken possession of it, but just keep it moist; a little extra air-moisture is a safer way of keeping these from suffering from drought than by applying too much at the root so early in the season. More Pines are spoiled by too much water than by anything else. If these are dependent for bottom-heat on fermenting material, see that with increasing sunshine it does not get too hot. When it exceeds 90°, move the pots a little from side to side, to let the heat escape. Keep the bottom-heat 85° to 90°, and towards the end of the month the night-temperature may be 70° with mild, and a few degrees less with cold, weather. Shut up early, and dew the plants lightly with tepid water three times weekly when the sunshine is steady. As soon as they begin to grow freely, air early in the day by degrees, and shut up early in the same way. Young stock not ready to shift in March should now be shifted.

Vines.—The early crop of Grapes in pots will in many cases be ripening this month. As soon as they begin to colour, let the atmospheric moisture be gradually diminished, and the amount of air — on fine days especially — increased. Avoid doing this suddenly, but let it proceed with the progress of the Grapes to maturity; a little air should be left on all night to prevent moisture accumulating about the ripening fruit. Some increase the temperature when colouring commences; of this we do not approve, but would rather decrease it slightly, at night at least. They will not now require so much water at the root, especially if the pots are plunged; but they must have sufficient, even after the fruit are ripe, to keep the system of the vines fully in action; but a hardened and maturer foliage and fully swollen and ripened berries cannot make use of so much as when the work of expansion and increase were going on. Should red-spider appear, as it sometimes does at the time of colouring, let the first signs of it be the signal for mastering it at once. Go over the leaves and sponge them carefully. This is perhaps the speediest and most certain way of getting rid of it. Syringing should only be resorted to where the water is free from deposit that will settle on and disfigure the fruit, when there is no objection to using the syringe once or twice after the colouring commences. Where crops are begun to colour on planted-out Vines that have their roots mostly in inside borders, let the border be examined immediately the first signs of colouring are noticed, and if it is dry give a thorough watering, and afterwards mulch with some dry Mushroom-bed or other short dung, and no more watering will be necessary till the Grapes are cut. Red-spider often is the result of the borders becoming too dry at this stage. Now that less fire-heat is needed to keep up temperature than earlier in the season, the night-heat in succession-houses that have been thinned, and in various stages between that and colouring, may be kept at 70° at night, unless in exceptionally cold windy nights. Of course, to aid in doing this with as little fire-heat as possible, let the house be shut up early in the afternoon, so as to make the most of sun-heat, starting the fires to prevent the heat from falling below the night-temperature named. Increase the air-moisture as the days lengthen and the sun increases in power, but avoid a damp stagnant atmosphere with a minimum temperature. It will be likely to produce mildew, or that excrescence on the under sides of the leaves which has puzzled scientific men so much, and which has been assigned to so many causes. Look over all growing Vines two or three times weekly, and stop lateral growths where

Digitized by Google

the Vines have much vigour in them, and are moderately cropped. These growths are produced rapidly, and they should be removed before they make much progress, it being very undesirable to allow them first to grow and ramble, and then to remove them suddenly and by wholesale. The best way is to prevent their production. This is presuming that the fruit-bearing wood is not stopped more closely than two or three joints beyond the bunch, and the laterals are allowed to make one leaf. Thin advancing crops as soon as the laterals are well formed, and let free-setting sorts be thinned sufficiently at once. Muscats and other shyer sorts had better not be thinned quite so early nor all at once. Late Grapes will now in nearly all cases be cut, and any pruning that the late Vines require should be done as early in the month as possible, and every wound dressed twice over with styptic to prevent bleeding. The inside borders of late houses generally become very dry by this time, and should, after said pruning and dressing, be watered thoroughly as soon as the Vines show signs of moving again. The surface should be pricked up with a fork to allow the water to enter regularly. Look to newly-planted Vines and see that the portion of their roots inside does not suffer for want of water, if near hot-water pipes. Rub off superfluous buds, and do not force them much for the present; shift pot-Vines into larger pots as they require it.

Peaches and Nectarines.—Early crops that are passed the stoning stage may now be forced more freely, making use of sun-heat as directed in the case of Pines and Vines. The night-temperature may range from 60° in cold to 65° in mild weather. Thin the fruit finally to about one to every square foot immediately they are stoned. Examine the inside border, and if dry, water well with liquid manure, and syringe freely every fine afternoon when the house is shut up. Look over the trees carefully and see that too much wood has not been left, and leave no more than can be tied in, so that neither branches nor leaves be crowded in the least. The laying in of too much wood, and then pruning it away afterwards, is ruinous to Peach-trees. The fewer knife-wounds in Peach-tree training the better. Disbud and pinch young wood in succession-houses. Partially thin the fruit where it has set thickly. Keep a sharp look-out for green-fly, and never let it get a footing. The best way to keep it down is to smoke with tobacco, or syringe with quassia-chip water at intervals after the fruit are set. Should mildew make its appearance on either fruit or leaves, attack it at once with flower-of-sulphur, and increase the heat and air. In late houses where the fruit are all set, give a vigorous syringing to rid the fruit of the remnants of blooms, and thin the fruit partially when about the size of Peas.

Figs.—Early crops on trees in pots require to be very carefully attended to with water. Never allow them to become dry at the root. The Fig is a moisture-loving plant, and when the pots are full of roots, and the trees in leaf and loaded with fruit, there is not much fear of over-watering them. Manure-water may be freely applied, but always in a tepid state. Syringe freely at shutting-up time, and keep the air regularly moist. Keep the temperature the same as for Peaches. When the crop is thickly formed, remove a portion of it. Stop the young growths, or rather bruise their points between the finger and thumb, to prevent them growing any more in length beyond the fourth or fifth leaf. Let no more growths remain than will just be enough to furnish the tree without crowding it. Old-established trees that are planted in limited borders inside, and in a thoroughly fruitful condition, mulch with rotten dung, and supply copiously with moisture at the root and in the air. Younger trees under similar circumstances are apt to make gross unfruitful growths, and should not be stimulated.

Strawberries in Pots. — Plants from which the fruit is all picked may be removed to cold frames to be thoroughly hardened off before being planted out. Give those that are colouring an increased amount of air. Thin out those that are thickly set, and syringe them two or three times weekly to keep down red-spider. Water regularly with weak manure-water from sheep or deer's dung. These may have a temperature of 65° at night. Plants in bloom will be warm enough at 60°. Put the remainder of the stock into cold frames

Digitized by Google

or pits, late Peach-houses, or Orchard-houses, wherever they can have plenty of light and not overmuch heat, and from whence they can be taken into the forcing-house to keep up the supply.

Melons.—Whenever a full crop is set in the earliest plants, increase the air-moisture and give a good watering at the root. Do not syringe or sprinkle overhead much, unless when the crop is in a Melon-house trained near the glass. Under such circumstances the syringe may be used two or three times weekly on fine days. Keep the night-temperature at 70°, with 10° or 15° of an increase by sun-heat. Look over those in bloom at mid-day, and impregnate such as are ready for the process, and stop the growth one leaf beyond the first as soon as the fruit appears. Apply fresh lining to dung-frames whenever the heat shows signs of declining, and let the fresh linings be always in a warm fermenting condition. Sow and plant out for succession-crops after the manner directed in former Calendars.

Cucumbers. — Increase the night-temperature of bearing plants to 75° in mild weather. Mulch those in full bearing in Cucumber-house with rotten dung, and do not allow them to cripple themselves by bearing too many fruit at one time. Shut up early in the afternoon, and syringe the plants occasionally when the days are bright. See that those in pits or houses heated with hot water do not suffer from want of water. Stop and prevent the leaves and growths from crowding. Sow and plant for succession-crops.

Notices to Correspondents.

We have again to crave the indulgence of those correspondents who have favoured us with their esteemed contributions, for which we beg to thank them, and which we are obliged, from want of space, to hold over till next month.

C. C. C.—You cannot do better than you propose, in case of an early vinery; but the rain-water pipe, &c., is not necessary in the case of bottom-heat. A lean-to house, facing due south, is best for early forcing; and permanent Vines will be the most satisfactory, but you may fruit Vines in pots between the permanent ones for a year or two. Before you commence, you should get 'The Practical Treatise on the Vine,' by W. Thomson (Blackwood & Sons)—a work which treats fully of your questions, and has plans of vineries adapted for early forcing.

CHRICHTON.—Surely you make a mistake in stating that your Vines are bleeding grievously at the leaves. We never saw Vines bleed at the leaves, but have frequently seen Vines bleeding that stopped doing so immediately leaves were expanded. We presume you mean the wood, with which, as you suppose, over-cropping last year cannot have anything to do. If we are correct in supposing that your Vines are bleeding at the wounds caused in pruning, you have been too late in pruning, and the wounds have not had time to heal sufficiently. As the Vines begin to grow, bleeding will stop. When late in pruning, dress the wounds twice over with styptic the third day after pruning, and they will not bleed.

J. C.—Camellias will do very well on the back wall of a vinery, and so will Oranges.

J. S. C.—First Lindley's 'School Botany,' then 'Elements of Botany,' by the same author. We do not state prices.

SUBSCRIBER.—For Stephanotis, peat-loam and well-rotted manure, with a sixth of the whole of sand. Lapageria, peat, and with a third of powdered charcoal and sand. Euphorbia, turfy loam and leaf-mould in equal proportions, with a sixth of the whole of sand.

T. D.—See what appears in our present issue on your question. Be cautious, respectful, and firm, and success will be yours. People are generally alive to their own interest, but wisdom is needed to shape a proper course of action.

RHODERICH DHU.—Peas, French Beans, Cauliflower, Celery, Onion, Vegetable Marrow, Mushrooms, Potatoes, Cucumber, Carrots, Cabbage, Parsley.

Digitized by Google

THE

GARDENER.

MAY 1872.

GARDENERS' WAGES.

WERE it not for the large correspondence that has reached us, since our last issue, on this subject, we would not have returned thus early to it again. We have had to congratulate under-gardeners on the advance on their wages in many places in *both England and Scotland*. We are now most happy to have it in our power to announce that in numerous instances head-gardeners have met with like consideration—spontaneously on the part of some, cheerfully on the part of other employers as soon as they were appealed to. And we are happy to say that the rise has been considerable—in some cases equal to 30 per cent; in others, even more than that. If gardeners are to be congratulated on this state of things, employers are equally so; for we conceive they could not take any steps so conducive to the best interests of their garden establishments, to say nothing of the good feeling between servant and employer being strengthened by the transaction. There cannot be anything more calculated to deaden the energies and stifle the enthusiasm of any class of intelligent men of good character, than their finding themselves left behind, in a social point of view, while all around them are progressing. Beyond all doubt, one of two things must take place: either gardeners' emoluments must advance with the times—with the price of land and the price of labour generally—or employers will ultimately have to put up with an inferior class of men for their gardeners. Such a state of things is only a question of time, if the prosperity of this country continues to progress as it has for the last twenty years.

The 'Gardeners' Chronicle' of April 6th, after saying that "head-gardeners are the most inadequately remunerated for their skill, time,

Digitized by Google

and knowledge of any class of skilled labourers, poor curates not excepted," reminds gardeners "that to most people gardening is a luxury, the first and easiest to be dispensed with in case of need; and they should bear in mind that gardening, as at present carried on, is a very costly matter, and one that might in many cases be rendered much less so by contracting with the neighbouring nurserymen;" and concludes by saying, "we leave it to those who have had to fill up their time in a nursery while out of place, whether that is the goal they wish to arrive at." Gardeners are expensive fellows, who could easily be dispensed with altogether, and they had better not say much about wages!! No doubt there are employers who are badly served, and who do not get a proper return for the money spent on gardening; but we deny that this can be said to be a general rule. All that can be said of gardening as a luxury, can be said of much more useless and expensive luxuries that have not, like gardening, a healthful tendency on the body politic. Yet these, and gardening especially, are, instead of being abandoned, going on increasingly; and, judging from the past, will go on to find favour and encouragement unless some calamity befalls the country. And unless the pleasures and the products of gardens can be purchased at a cheaper rate than they are produced by gardeners just now, we are at a loss to know why it can be said of gardens that they do not pay. Tested commercially—and we are certain gardeners would wish them so tested—we will warrant that they pay better than home-farms. We are certain that no step which employers of efficient gardeners could take would tell so much in favour of those gardeners, than that the work they do and the produce they supply should be attempted by a "contract with a neighbouring nurseryman." Plenty of gardeners would not hesitate to face a year in the nursery in order to let employers and nurserymen try their hands, as suggested by our contemporary; ay, they would even do so with the spirit of him who was ready "to sned bussums or thraw saugh woodies" to gain a commendable end; respectable and competent men, too, who have in their time, unfortunately, waited a situation in nurseries, and found there—if not high wages, certainly easier work than ever they had before or since. We have never heard nurserymen dilate on the prodigality of labour in a private garden, but often have they been heard to say that they could not get the same work performed by the same number of hands. Nurserymen cannot afford to work without a reasonable profit any more than any other class; and generally they pay their superintendents as well as, if not better than, head-gardeners are paid. And if we turn to those who cultivate fine fruits for market-gardeners, the same thing applies to them. We know that in some cases they pay their young men 20s. and 21s. per week, with

Digitized by Google

lodgings, &c., and some of them who act as salesmen get 40s. per week, and foremen £100 a-year.

But we appeal to gentlemen who employ gardeners as to the relative cost of what they have supplied to them by contract and what is supplied to them from their own establishments. What is their experience in the case, for instance, of their contracts with nurserymen for, say, keeping their small conservatories gay in their town residences for four months of the year, and with the commonest and most easily-grown plants too? We cast not the shadow of a reflection on nurserymen's prices, for there is competition enough, energy enough, and honest dealing enough amongst them, to keep their prices only fairly remunerative. We are possessed of figures and facts on these points which tell greatly in favour of the cost of produce and work done in home establishments, and we earnestly hope that in addition to the many "cuffs" and unfavourable reflections poured upon gardeners for the last thirty years they are not to be libelled on this point also. We are earnest for nothing beyond fair-play, and we hope gardeners will be so treated, and are certain they have nothing to fear from the severest scrutiny and comparison regarding this question.

CONSERVATORY CLIMBERS.

THERE are now hundreds of conservatories in this country of a lofty and light character, with ornamental pillars, rafters, and spandrels, as distinguished from the old-fashioned dark Orange-houses, which are admirably adapted for showing off the beauties and growing to perfection climbing and twining plants; these again are equally well adapted for filling up the gauntness and clothing the rafters of a lofty house. Travellers tell us that climbing plants in their native habitats delight to run and sprawl about in all directions, up in the sun on the tops of the loftiest trees, flowering with a splendour which Kingsley compares to a great flower-bed in the air, if we recollect right. They want room to spread about and extend themselves. Tied up wisp fashion to the low rafters of a greenhouse, they never display their fine qualities to advantage; indeed, they are generally ragged and disappointing—a sort of nuisance, especially if grown in pots. One or two good climbers well grown are quite sufficient for all the rafters of a good-sized greenhouse or stove; where a large light conservatory is at command, a greater variety may be indulged in. There are many and various subjects which come under the general name of climbing plants; that is, which ascend by the help of other plants, by whichever of the many curious means they may employ for that purpose. From our present

Digitized by Google

point of view we shall think of them as of only two kinds,—those which are suited for covering walls, pillars, and trellises, and those of the climbing section proper, those great rope-like leaves which mount rapidly to great heights, and are best suited for covering the roofs and rafters of lofty houses. Their culture under the conditions necessary to their growth is comparatively easy; for pruning and training they are of course not always easily got at, and therefore cause a good deal of labour in that respect. All, especially the second section, ought to be planted out, where many of them are perpetual bloomers. Unfortunately, many conservatories, and those generally of the greatest pretentions architecturally, are not planned with this consideration in view. Every conservatory or other house in which it is intended to grow climbers creditably, should be provided with good-sized borders, either inside or out, in which to grow them. We say outside advisedly, as we are persuaded that outside borders are the best for large conservatory climbers, just as is the rule for Vine-growing. A year ago we made the experiment of planting out a number of climbers as above, by taking out holes in the front wall of a house under the surface of the outside border, introducing the plants through the hole, and planting the roots in a prepared border outside: the plants have all done remarkably well, and contined to grow even throughout the winter; the roots have been protected by a thick coat of short grass. Tecoma jasminioides has done well under this treatment, and flowered better than those wholly indoors. Tacsonia Van Volxemii and Mandevilla suaveolens have done perfectly; the latter sometimes sets its fruit on the south coast out of doors. Such things as Bignonia capreolata and the greenhouse Passifloras, such as cærulea, Stauntonia latifolia, are well known to be nearly quite hardy, and need not be instanced. We feel quite assured that all greenhouse climbers should be so treated, such as the Jasminiums, Brachysemas, Tacsonias, Lapageria, and Rhyncospermum; we know of one of the latter covering the whole front of a house by the sea-side, out of doors, which is annually covered with its sweet-scented white flowers. Wherever possible, we advise the formation of a border outside the conservatory for the climbers, introducing them to the interior, below the ground-line, so that no part of the stems be exposed to the weather; the roots of the more tender ones to be protected in winter with leaves or Ferns sufficient to prevent the soil being frozen. Inside borders may in certain cases be preferable; they should be sufficiently large and accessible, and in every instance well drained and sweet. If tubs or pots must be used, recourse must be had to feeding in the shape of top-dressing and manure-water, else climbers will be a failure. Some of the more robust of stove-climbers will answer perfectly in the conservatory, if planted in a border entirely

Digitized by Google

raised above the level of the floor, to allow of the soil being heated by the atmosphere of the house—Bougainvillæa glabra and speciosa, Bignonia venusta, Passiflora quadrangularis, Clerodendron Balfourii, and Passiflora princeps; in such a position they cannot be soured by over-watering in winter. With us some of these have grown and even flowered all winter in a perfectly cool conservatory, with the border above the floor-line well drained and dry.

The after-culture of climbers is simple enough—attention to watering (of which they want a great deal in summer), thinning, and training. When they have covered their allotted space, it is best to give them all a good cutting-in once a-year, spurring them like vines; the best time to do so, generally, is about February. Even then, it might be at the expense of an early show of flowers, as with Tacsonias and Passifloras. Some large plants of Tacsonia manicata pruned late last year are now covered with bloom-buds and some open flowers.

Of the section suited for covering walls, trellises, pillars, and such-like, there is a wealth of sorts without including the many things which can be pressed into that service which are not climbing. Clianthus magnificus deserves a first place; it should be cut closely in when done flowering, and can be made to cover any amount of space in time. Swainsona Osbornii, an elegant plant, should be managed in the same way. Habrothamnus elegans, useful for winter-flowering. Plumbago capensis, for autumn blooming, has no rival for its own peculiar blue colour. Abutilon striatum and others which stand out of doors against a wall in the south. Heliotrope, ever flowering and ever useful, should not have overmuch root-room. Fuchsias, some of which are evergreen and perpetual flowering. Scarlet Geraniums of the double varieties. The various Ivy-leaved Geraniums, l'Elegante, Duke of Edinburgh, and Willsii, and some of the old Oak-leaved and sweet-scented sorts. Chorozemas and Cytisus of sorts where there is abundance of light. For covering back walls—Camelias, Orange-trees, Rhyncospermum, Ficus elastica, F. Porteana, Lapageria rosea, and Lygodium scandens, and lots of others. The list would not be easily exhausted. But of all plants for covering pillars and walls in cool conservatories, where there is abundance of light, nothing equals, in our estimation, the tea-scented and China Roses of the climbing section; and foremost among them is Maréchal Niel. We have plants now twelve months planted indoors, out of 4-inch pots, which have shoots 14 feet long, and have broken at every eye all along that length into side-shoots 9 inches or more long, with a bunch of flower-buds to each; the knife has not yet touched them. Gloire de Dijon is also grand as a conservatory plant, and some of the seedlings from it, as Mont Plaisir and Belle Lyonnaise, Safrano, Souvenir d'un Ami, Cloth of Gold (a rafter

Digitized by Google

Rose), and Solfaterre, Climbing Devoniensis, and Gloire d'Bordeaux; but we must stop, else we shall add too many names. They should all be kept thin by cutting out old wood, but leaving the young the whole length. These Roses are found to be tender in our English winters; the real state of the case is, that they require the assistance of glass in summer to make and ripen their wood like a Vine, when fine flowers and plenty of them will follow. Out of doors Maréchal Niel is said to be a shy flowerer; his place is the conservatory.

The flowers of most climbers are as useful as most others for cutting; indeed, some of them are quite articles of commerce—for instance, Stephanotis, Rhyncospermum, and Jasminium, for bouquets; Lapageria for ladies' hair and table-decoration. The long leafy twigs of the Passifloras are of use in table-decoration, to twist spirally up the stems of candelabra or flower-stands. The old Cobea scandens variegata, though of a weedy character, is also very pretty for the same purpose.

Many twining plants and some creepers have the peculiarity of growing a great length without leaves: Hoya, for instance, Rhyncospermum, the Wisteria sinensis. We have known such growths to be cut off as being supposed imperfect; this should not be. Bauhinias are said to grow to the length of 40 feet without leaves in their native habitats; perhaps the want of sufficient light may be the disposing cause, like a Potato-shoot in a cellar. THE SQUIRE'S GARDENER.

NOTES ON HARDY CONIFERS.

PICEA (THE SILVER FIRS).

(*Continued from p.* 162.)

THIS interesting section of the Coniferæ contains some of the most beautiful of our hardy evergreen trees. In general appearance and habits of growth they resemble the Spruce Firs, with which they are by some writers associated. They have, however, several well-marked and constant characters which seem to justify their separation into a distinct genus, and which, at least, form a convenient guide to their popular identification. Their leaves are for the most part longer and more flattened, silvery beneath, and disposed more obviously in two rows, than those of the Spruces, while the cones are invariably erect, produced on the upper sides of the branches, and deciduous, the scales falling off when they reach maturity.

Like the Spruce Firs, they have a wide geographical range in Europe, Asia, and America, but are found in more temperate regions, or at least in more sheltered situations. A large proportion of the species

Digitized by Google

are quite hardy, and do well in most districts in this country; and though, with the exception of the common Silver Fir (P. pectinata), as yet of little repute as timber-trees, they are all highly appreciated, and extensively planted for decorative purposes, making beautiful lawn specimens, and producing the finest effects, either as grouped by themselves, or blended with other Firs or deciduous trees in mixed plantations.

With few exceptions they thrive best and form the finest trees in low-lying sheltered places, where the land is moderately moist without being wet, and of a deep, rich, loamy, or alluvial character. In thin, dry, gravelly or sandy soils, and on high situations, where many of the Pines will succeed well, the Silver Firs become mere stunted bushes, and rarely live longer than a few years. In the earlier stages of their growth, and for a considerable time after transplanting, they make very slow progress, but after attaining the height of a few feet, when the roots become thoroughly established in good soil, other conditions being favourable, they shoot up with great rapidity.

Several of the species, though otherwise quite hardy, have a tendency—particularly while young—to start early into growth, and, as a consequence, to suffer from late spring frosts. These should always be planted in a situation where they will be shaded from the early morning sun, the influence of which, if brought to bear upon the young growths while still frozen, and before the temperature rises so as to thaw them gradually, is more fatal than the frost itself.

Many of the hardiest and most ornamental of the species are from Northern California; and though some of these have been known in Britain for more than forty years, it is a remarkable fact that, with the exception of such as are bearing cones, they are still among the scarcest of the Fir tribe. Seeds have again and again been imported—and within the last few years in considerable quantity—but the number of plants raised has been comparatively limited. In the case of P. amabilis, it is even questionable if a single seed has germinated since the few first sent home by Douglas in 1831. This arises not from any difficulty experienced by collectors in obtaining cones, as they can be had in abundance, but from the attacks of a small insect which deposits its eggs in the seeds before they are ripe and while the cone is yet soft and green. The maggot is hatched as the seeds become matured, and feeds upon the kernel; and though apparently perfect and sound before their despatch to this country, they are found on their arrival, in many instances, to be so perforated and hollowed as to render germination impossible. The following are hardy and desirable species:—

Amabilis (*The Lovely Silver Fir*), one of the grandest of the Californian Firs, is found in its native habitats growing in dense forests, in

Digitized by Google

valleys and the lowest slopes of mountains, rising to heights of from 150 to 250 feet—with trunks from 5 to 7 feet in diameter near the ground — the straight, arrow-like stems in many instances clear of branches for 100 feet. It is quite hardy here, and from the few specimens which we have had the opportunity of seeing, we are convinced that it could not be named more appropriately. It is indeed a "lovely" tree, with a slender, conical habit, thickly branched and profusely covered with foliage. The leaves are about an inch long—incurved on the upper sides of the shoots—of a dark glossy-green colour on the upper side and silvery beneath.

From the cause we have already stated, it is, so far as seedling plants are concerned, as yet extremely rare, and planters have to content themselves with young plants raised by cuttings or grafted upon some of the other species, which, though requiring a long time to form leading shoots, become ultimately handsome plants, and repay all the patience and care that have been bestowed upon them.

Balsamea—*The Balm of Gilead Fir.*—This well-known and handsome species is indigenous to Canada, Nova Scotia, and the Northern States of America, and was first introduced to this country about 1696. It constitutes vast forests in low sheltered valleys and by the sides of rivers, growing in rich alluvial dampish soil, and rarely rising higher than from 30 to 50 feet. It is quite hardy here, and though little valued as a forest or timber tree, it gives a pleasing variety to mixed plantations, and particularly while young forms a remarkably handsome lawn specimen, having a neat conical habit, somewhat slender, but well furnished with bushy branches to the ground, and profusely clothed with short bright green leaves, which are silvery on the under side. Having the unfortunate tendency of making early growths, it should always be planted in cool stiffish soil, and in a north or west aspect, where it will bear any amount of frost, and prove all that could be desired as a pretty ornamental tree.

Cephalonica—*The Mount Enos Fir.*—This fine species was first sent to Britain from Mount Enos in Cephalonia in 1824, where, at an elevation of 5000 feet above the level of the sea, it grows to the height of about 60 feet, with a trunk of from 3 to 4 feet in diameter. It is also found in considerable abundance in high mountainous districts in Greece. It is quite hardy here, though, if planted in unsuitable situations, liable to damage from late spring frosts. To insure success, it should have a shady exposure and a stiffish soil. It is a distinct and beautiful tree, admirably adapted for growing as a single specimen, having a broad conical habit, branched to the ground, and most profusely covered with foliage. The leaves are very short, stiff, and sharply pointed, dark green above and silvery beneath.

Digitized by Google

Cilicica—*The Cilician Silver Fir.*—This beautiful tree, though regarded by some writers as only a variety of the common Silver Fir, to which it bears some resemblance, is nevertheless so distinct, and forms such an attractive hardy ornamental tree, as to be worthy of introduction into the most limited collections. It is found on Mount Taurus, and in many of the other mountains in Asia Minor, growing in high but sheltered situations, and in rich loamy soil. It rarely attains a greater height than about 50 feet. It is quite hardy in this country, and makes a neat lawn specimen. The leaves are of a dark-green colour above and silvery beneath.

Grandis—*The Great Silver Fir*—first sent home by Douglas from Northern California in 1831—is a majestic tree, found growing in moist valleys and banks of rivers to heights of from 200 to 280 feet, with a diameter near the ground of 5 feet. It is one of the hardiest of our exotic trees, growing with great luxuriance in any situation where it is moderately sheltered, and the soil deep and rich. Few of its tribe form more beautiful single specimens, or are more likely to produce, as they increase in size, a more striking landscape effect. It has a fine conical habit of growth, densely branched to the ground: the leaves, which thickly cover the shoots, are from 1 to 1½ inch long, flat, deep shiny green above and silvery beneath. Seedling plants of this interesting tree are as yet rarely to be had.

Lasiocarpa—*The Woolly-Scaled Silver Fir.*—Introduced as recently as 1860 from Northern California, where it grows to heights of from 200 to 250 feet. It is quite hardy in every district in Britain, and is one of the most beautiful of the tribe, forming a symmetrical conical specimen, regularly and thickly branched to the ground. The leaves are somewhat sparely distributed over the branches, from 1½ to 2 inches long, broad, and of a distinct light green colour, contrasting well with the other species, and along with its handsome form rendering the plant a conspicuous and pleasing object, whether met with on the lawn or mixed plantation. It is only necessary to add that it is indispensable in every collection, and that it accommodates itself to almost every variety of soil, and is by no means fastidious in regard to situation.

Magnifica—*The Superb Silver Fir*—known also as Robusta magnifica and Nobilis robusta—is another of those grand introductions from Northern California within the last few years, where it is described as a stately tree, rising sometimes to a height of 250 feet. When first sent home, it was regarded only as a distinct variety of Nobilis, which when in a young state it resembles very much; and it is still a disputed point whether it has a right to be ranked as an independent species. It is, however, a remarkably handsome and

Digitized by Google

very popular tree, well worthy of cultivation in every collection. It has proved itself perfectly hardy, and will thrive and grow with the greatest luxuriance in ordinary rich soils, while from its lateness in starting into growth it may be planted in open sunny situations. In common with Nobilis and others of its class, it has a dense conical habit of growth; the leaves are of a light-green colour, longer and more sparely set upon the branches than those of that species.

Nobilis—*The Noble Silver Fir.*—Found wild on the north-west coast of North America and in Northern California, growing on mountains at an elevation of from 6000 to 8000 feet, and introduced into this country in 1831. In its native woods it rises to heights of from 150 to 200 feet, with a diameter near the ground of from 3 to 4 feet. It is one of the hardiest of the species, and grows with great vigour in any deep rich soil, and in an open but sheltered situation. It forms a fine conical lawn-tree, with abundance of horizontal branches. The leaves, with which every shoot is covered so thickly as to have a crowded appearance, are from 1 to $1\frac{3}{4}$ inch long, of a peculiar bluish-green tint on the upper, and silvery on the under, side.

There are few lovers of fine trees who will question the singular appropriateness of the name which its discoverer Douglas conferred upon it. Beyond doubt it is one of the noblest and most beautiful of our hardy trees.

Nordmanniana—*Nordmann's Silver Fir.*—Found wild on the Crimean mountains, and on those to the east of the Black Sea, where it is found in vast forests, attaining heights of from 80 to 100 feet: it is much valued for its timber, which is hard and durable. It was introduced in 1845, and has since been extensively distributed over the country in every district, proving itself thoroughly hardy, and well adapted to our climate. It forms a very handsome conical tree, densely branched to the ground, and abundantly clothed with leaves light green above and silvery beneath. As an effective lawn-specimen it is unrivalled, and it is invaluable in landscape-gardening, its peculiar warm green tints contrasting well with the more sombre hues of the great majority of evergreen trees.

Pectinata—*The Common Silver Fir.*—A well-known and beautiful tree, introduced in 1600 from the Alps. It is also found in great forests on the Apennines and other mountains of central Europe, rising to heights of from 80 to 150 feet. It is here largely planted for its timber, and though a very common is a handsome and interesting ornamental tree of conical habit, and, when grown singly, regularly and densely branched. The leaves are about 1 inch long, shining dark green above and silvery beneath. As it commences to grow early, and

Digitized by Google

frequently suffers from spring frosts, it should always be planted in a shady situation, and in a cool stiff soil.

Pichta—*The Pitch or Siberian Silver Fir*—is a small tree, seldom exceeding 40 feet in height, found wild on the mountains of Siberia and the Altai, in immense forests, at elevations of from 2000 to 5000 feet. It was introduced in 1820. It is here a distinct and pretty ornamental tree of conical shape, abundantly branched to the ground. The leaves are thickly set on the shoots, dark green above, and lighter but not silvery beneath. In low-lying places it starts early into growth, but if planted on high rather exposed situations, and in stiffish soil, it will succeed well, and form a fine vigorous specimen.

Pinsapo—*The Pinsapo Silver Fir.*—Found abundantly on the higher mountains of Spain, principally on northern exposures, and sometimes reaching to their summits, where the snow lies for five months in the year, and growing to heights of from 40 to 70 feet. It was introduced into this country in 1838, and has been found to be perfectly hardy in our severest seasons. Few trees are more ornamental and effective, when planted singly, where all the branches have plenty of room to develop themselves, forming as it does a symmetrical conical tree of very dense habit, with the branches divided into innumerable ramifications from the ground upwards, so as to hide the main stem, giving it a remarkably distinct and interesting appearance. The leaves are very short, rarely more than 1 inch, cylindrical in shape, very sharp-pointed, regularly and thickly disposed round the branches, and of a pleasing light-green colour. It thrives well in any ordinary rich soil, and prefers an open situation if moderately sheltered.

HUGH FRASER.

EARLY GRAPES.—POT-CULTURE.

CONSIDERING that the Vine can be so easily and successfully cultivated in pots, it is not a little surprising that the plan has never been reduced to a system, especially in the production of early Grapes. There are exceptions, I am aware; but in the majority of places the cumbrous and expensive plan of forcing permanent Vines, with all its attendant risks and troubles, is still generally in vogue.

There are doubtless instances under skilful management, and with Vines aged and in good heart to begin with, of fair crops of Grapes having been produced from permanent Vines for a good many years, but there is abundance of evidence to show that as a rule, after two or three years early forcing, failure, partial or altogether, is the result. Nor can we expect anything else. It is impossible that Vines forced

Digitized by Google

during the dreary winter months, year after year, can retain that amount of vigour necessary to sustain anything like a decent crop of fruit. This is the whole secret of the matter. We have seen permanent Vines forced under all sorts of conditions, and always with the same result in the end. In many cases it would pay a vast deal better to buy pot-Vines from the nursery every year for early forcing than trouble with permanent Vines, entailing as they do a far greater amount of anxiety and attention for a considerably less average return.

Pot-Vines are under better control; they can be grown in less space: and if the Vines have been properly prepared, they can be relied upon to produce a heavier and a more certain crop than permanent Vines. The only difficulty is, that every one has not the means of growing the plants on for two years before forcing them—for a crop in March we shall say; and it seems to have occurred to but few nurserymen that it would be worth their while to produce a really good article for this purpose. We have tried frequently to buy well-ripened two-year-old pot-Vines, innocent of bottom-heat, from the trade, but have rarely succeeded in getting anything like fit subjects to operate upon. After November the market is glutted with "strong pot-Vines," warranted to force early or late; but the shrewd cultivator who wants plants to *start* in November will make his market if he can before then. Plants for forcing early must be brown and ripe in July at the latest; and this is the time to buy if we want to be sure of the article.

Now that late Grapes can be furnished easily and in fair condition till the beginning of April, a very moderate-sized house of pot-Vines might be made to carry the supply on until June or July, which would obviate the necessity of starting the earliest house of permanent Vines before the middle of January or beginning of February.

A suitable structure for growing and fruiting pot-Vines in a systematic way would be the first consideration. A lean-to house or pit, 7 or 8 feet wide, with a bed along the front and a path along the back, would perhaps be as economical a structure as could be devised for such a purpose, as it could be utilised for Melons or Cucumbers after the Grapes were cut. Such a house would accommodate one row of pot-Vines set along the front and trained up under the sashes. The length such a house ought to be would depend upon the demand; but as pot-Vines can be fruited successfully, trained at most 15 inches apart, and as each plant might in a general way be calculated to yield six bunches, or perhaps 4 or 5 lb. each, it will be seen that a moderate-sized house would give a very good return, especially when com-

Digitized by Google

pared to the crops generally seen on old debilitated permanent Vines, even allowing that a division similarly fitted up would be required to grow a successional lot of pot-Vines, for we only recommend buying the plants when they cannot be grown at home.

In this paper it is more our object to advocate pot-culture generally for early work than to describe the routine of culture in such cases—a subject which has been handled ably in the 'Gardener' before this, and notably, I ought to state, by Mr Cramb of Tortworth Court, who, I believe, has practised the pot-culture of the Vine in something like a systematic manner for some years. We hope to do the same ourselves before long. Fifteen years ago, or more, we were impressed with the utility of the pot system by seeing a splendid house of pot-Vines at Dalkeith in March and April, and have had a hankering to put the plan into practice in a constant way ever since.

Plants that are intended to fruit in March and April require to be grown two years. The first year they should be started from eyes in the usual way, and grown on liberally in 10-inch pots through the season. When the wood is ripe, but before the leaves are fallen, the plants should be shifted into pots a size larger—reducing the balls just sufficiently to disentangle the points of the roots. In November the canes should be cut down to one or two eyes; and by the beginning of January the plants may be again started and pushed on with the same liberal treatment, and in a brisk temperature, which, if all goes well, should give canes 8 feet long, and ripe to the top by the end of June, when they should be set out of doors behind a north wall, with a few leaves packed round the pots to save the roots from injury. What pruning the plants need should be done in August, even though the leaves are not fallen off entirely, and by November they may be introduced into heat. After this, saving that they require strict attention in watering, the ordinary vinery treatment is all that is required till the fruit is ripe in March.

J. SIMPSON.

WORTLEY.

A FEW NOTES ON FLOWERING BULBS.

I OFTEN wonder how it is that bulbs as a class are so very much neglected in our gardens. It cannot be because they lack either beauty or interest, for there is scarcely any other class of plants deserving of more extended cultivation. Take, for example, Eucharis amazonica, with its great, pure-white, wax-like flowers, which rival in chasteness and purity the most beautiful Phalænopsis. I consider its flowers superior to those of most choice Orchids, not even excepting the superb Odontoglossum Alexandræ, for ladies' hair, or for bouquets and floral decorations. For gorgeous beauty and splendid colouring, take some of the varieties of Amaryllis, one of the most diversified genera we have, so far as colour is concerned, as its different varieties run from white into the deepest

Digitized by Google

shades of velvety crimson. Easy as is the regime necessary to obtain successful results with the Eucharis, there are many who fail most miserably in its culture, and grow the plant for years without obtaining a single bloom for their pains, or rather, I should say, for their mismanagement. In order to flower it well, it should be grown in shallow pans, say about 6 inches deep, using a rich compost of rotten hot-bed manure or leaf-mould, fresh fibrous loam, a sprinkling of bone-dust, and coarse road or river sand being added. As the pan becomes filled with roots, the soil will naturally become exhausted; and when the plants are in full growth, they must be liberally supplied with liquid manure. After they have made their growth, allow them to become nearly dry, and remove them to a cooler temperature for a few weeks, in order to induce them to rest. After this resting process, they may be taken back into the plant-stove, or into a forcing vinery, and induced to make a fresh growth, supplying them liberally with manure-water as before, when in full growth. A plant in a large flat pan, treated in this manner, produced 22 fine spikes of flowers, and on this plant 63 flowers were fully expanded last Christmas-day, and the splendid effect of this noble specimen may be more easily imagined than described. These plants may be grown very successfully in pots, but I myself prefer shallow pans, which speedily become filled with roots, after which they may be made to bloom at nearly any particular season when their flowers are most in demand.

Amaryllises are very beautiful plants, mostly deciduous, though those plants belonging to the "marginata" section are evergreen, somewhat like the Vallota. These plants may be flowered at any period, and at one place in England, at least, they are bloomed nearly every day in the year. This is done by Mr Murdock, gardener to W. H. Rawson, Esq., Mill House, Sowerly Bridge, Halifax, where may be seen, perhaps, the largest and best collection of flowering bulbs in this country. When required for flowering, Amaryllises should be shaken out, and potted in fresh fibrous loam, leaf-mould, and coarse river sand, taking care not to insert the bulbs more than half their depth in the soil. They may then be placed either in a vinery at work, or in a plant-stove or pinery, gradually giving them a little water as they become rooted. When flowering they require watering liberally, adding manure-water as the pots become filled with roots; and after they have finished flowering they should not be put on one side, or thrown under the nearest stage, as is too often the case, but they must be watered carefully, placed near the light, and induced to make as fine foliage as possible. The finer the leaves, the better will the bulbs become ripened—that is to say, filled full of elaborated sap, and thus enabled to flower strongly the following season. When the foliage shows signs of having fulfilled its mission, water must be gradually withheld, to assist nature, but do not by any means attempt to force her by letting them become at once dust dry. When thoroughly dried off, they should be placed in a cool place, where there is a moderate amount of moisture in the atmosphere, just sufficient to prevent the bulbs losing their energies by evaporation, a state of things far more common than might at first sight be supposed. Carefully protect them from drip. The marginata section, being evergreen, require a different course of treatment to that above recommended, for they will require water more or less all the year round. As a matter of course they must be partially rested, as is the case with Vallotas, Zephyranthes, Eucharis, and other evergreen bulbs, in order to enable them to thoroughly recuperate their energies, which have been used up in blooming. They are invaluable for their winter-blooming properties, and not an odd bulb or two, but hundreds ought to be grown in every establishment of any pretensions whatever. Another point in favour of these beautiful plants is the

Digitized by Google

ease and certainty with which they can be propagated, either from offsets, or by seed. Named varieties of great merit must, as a matter of course, be multiplied by offsets, but if a large number of plants is required for ordinary decorative purposes, they may be obtained from seed by the hundred; and if a little extra care and skill be exercised in the crossing of the parent plants, many beautiful and valuable varieties may be obtained. If a few seedlings only be raised every year, there will always be a succession for blooming purposes, and there is always a keen pleasure in watching seedling plants—which vary so much as do these—open their flowers for the first time.

The same remarks apply to the Nerines, another useful genus of winter-blooming bulbs. Nor are these all we have; Liliums, Crinums, Scillas, Narcissus, Jonquils, Muscari, Ornithogalums, and Vallotas, to say nothing of a great many other worthy subjects of which it is impossible to grow too many in our gardens and plant-houses. What can be finer in the depth of winter than the flowers of several species of the genus Crinum—that is, for bouquets? and the blue flowers of the pretty little Squills are also well adapted for this purpose—blue being by no means a common colour in our greenhouses at any time, least of all in the winter season. Most people treat bulbs as they treat their Orchids—that is, on the "starvation" principle, whereas bulbs are very gross feeders, and require abundance of rich nourishment in order to develop themselves to the best advantage. Give them this, and they will amply reward you, for out of those great fat bulbs they will throw such glorious spikes of richly painted flowers as to surprise you—that is, supposing you have not hitherto seen what a liberal course of treatment will do for this fine class of plants. Having seen Vallotas and Eucharis grown in pans by the half-dozen, and over twenty fine spikes of each in a pan, I can speak feelingly on this liberal system as applied to the cultivation of bulbs. Every one knows what a startling effect manure-water has on Prize Hyacinths—at least their growers know it; so my advice is, take the hint and do likewise.

F. W. B.

HINTS FOR AMATEURS.—MAY.

The disbudding of fruit-trees will now require attention, and to do it well considerable care is necessary, as a well-balanced tree is not the only object, but also a fruitful one. Where shoots are starting into very strong growth, they should be either rubbed off or stopped to cause shoots to fill up vacant space. All that grow out from the wall should be shown no quarter. When this work is well done in summer, much time is saved in winter, and trees are not so liable to canker as when much cutting is done. The work should be done by degrees, as great quantities of foliage taken off at one time may give a serious check to the tree; and dropping of fruit, or an early and severe attack of insects, may be the result. Peaches, Apricots, and Plums are most in want of disbudding, but where there is time it may be extended to all the trees, and even bushes are improved by the operation. Morello Cherries are often allowed to become too thick, which is an evil to be prevented. It must appear to many that it is not a sound practice to allow quantities of wood to grow, to be all cut off again without

Digitized by Google

being of any service. Trees on walls are generally left far too thick to have either fine-coloured or highly-flavoured fruit. Give newly-planted trees a soaking of water when weather is dry; they need not be permanently fastened to their places, but allow room in the ties, &c., to let the trees sink down as the soil becomes solid. Keep insects in check by timely application of tobacco-water or hellebore powder. Syringe on the under sides of the leaves after they have been well mixed in water, or Pooley's Tobacco-powder does well when applied in the same way. If red-spider appears, it is a sure sign that the trees are not well supplied with wholesome nutriment at the roots, and the roots will have probably found their way into very poor sandy soil. Nets may be placed over Cherries to keep off birds; though the fruit is green, they devour it greedily. Suckers should not be allowed to grow up from the stocks of any trees; if they appear, their base should be found, and be taken clean off there.

The keeping of lawns will now require full attention; the usual sweeping and rolling will now take up much time; weeds such as Dandelions may require clearing off. They should be grubbed up as deeply as possible, then a pinch of salt left in the holes. Turf lately laid down may require water. If allowed to become dry, the lawn may be unsightly all the season. Where grass-seeds have been sown, mowing should be done sparingly for a time till the grass becomes established. Roses and newly-planted shrubs may require water. When it is given, no sparing draught will be of any service. Dry soil or mulching of some kind should be placed over the surface, to keep the moisture in. The mulching, we have often said, can be covered from view with soil, but its advantages we often prove to be great. Shading Tulips when they show flower is an important matter when fine colours are desired. When Auriculas are done flowering, let the blooms be cleanly picked off, except when seed is required. They may be stood on a hard surface, and plenty of water given them. Seed may now be sown in pans or pots, using fine sandy soil for covering. Polyanthuses done blooming may be divided to increase them; seed may be sown in a cool shady position. Pansies require plenty of moisture, and if ground is poor and light, plenty of decayed manure may be forked in among the plants—rotted cow-manure is the best. Annuals of various kinds sown now will come in for late blooming; thin out those already up: when they are very thick, a short blooming period is the result. Keep suckers of Rose-stocks intended for budding—a soaking of water may be of service to them. The planting of flower-gardens will soon require attention; the ground should be in healthy condition, and a well-broken surface made. A note of the plants for bedding should be made on paper, and also a rough sketch of the beds or borders made,

Digitized by Google

and with the two a correct arrangement is soon formed, and a number of labels stuck into the ground with the occupants written on them, and then the work can be systematically done, and mistakes are not liable to be made. When planting is done, the balls of soil in which the roots of the plants are should be moist, and sticking the roots in a hole and planting them are two different matters. The soil should be well broken and carefully pressed to the roots as the work goes on: if the soil is very dry, the surface portion should be drawn aside, and not placed next the roots. When the plants are not of equal height, the taller ones may be placed on their sides with their tops to the north, and they will soon grow upright towards the sun. Mixtures of glaring colours are to be avoided; simplicity of arrangement is often by far the most effective. Begin with the hardiest plants, first such as Calceolarias, Verbenas, Gazania, &c., reserving Dahlias, and Heliotropes to the last.

It is a bad practice to frequently dribble plants with water when they are newly turned out, as the soil is kept cold, and only a portion of the roots moistened. Give a good watering to the whole bed or border, then leave it till the surface is dry enough to be hoed, making it loose to keep in the moisture. When nights are likely to be cold, the watering should be left till the following morning. There are many plants which flower at this season, which often might have their blooming period lengthened if watering, shading, and cleanliness had proper attention. Dryness at the root and badly-drained pots, which cause the soil to become sodden, are evils which soon work the destruction of the plants. If a few plants only become infested with insects, they might be taken to a frame or other small structure and fumigated. Quassia-water is a good clean preventive. Oranges and Camellias should be kept growing, to get their bloom-buds formed in good time. If early flowering is required, the plants may be forced along, but not exposed to strong sunshine. They require plenty of water. Clear soot-water is an excellent stimulant for them, and may be syringed overhead; but weakly, as the young growths might suffer. Azaleas, to flower early, also require warmth and moisture, and to be shaded from sun. Air must be given to keep the growths sturdy. Epacris in heat, to make their growth, should not be left too long in their forcing quarters; but sudden exposure is a great evil, which often proves fatal to even comparatively hardy plants. When plants are to be potted to increase the size of the specimens, it should be done in time to prevent them being checked; or if they are to be kept in same-sized pots, reducing the ball by cleanly cutting a small portion of it away all round; and potting in suitable soil should be done when the young growths are an inch or so in length.

Digitized by Google

Syringe overhead, and keep the plants a little close and shaded till growth is again active. Watering under glass may be done in the evening, but it is not always well to do it at night to plants standing out in cold positions. All plants to flower during summer and autumn should have every attention to keep them growing freely, giving timely shifting, turning them round to light, admitting fresh air freely into the structures, and training the plants into form as they grow. Balsams, Cockscombs, Globe Amaranthus, Achimenes, Gesnerias, Gloxinias, and other plants to flower in greenhouses, &c., should not be made weakly by a high close temperature: open the pits and frames early in the morning, and gradually increase the air as the day advances; and if sun-heat can be harvested in the afternoon, it will save much artificial heat. Fuchsias require liberal shifts; no plants suffer sooner from being pot-bound or starved for want of water. Heaths may soon be taken out into a shady position, and, except for hardy large plants, they do better to be where heavy rains can be thrown off them by lights or otherwise. Gladiolus, Liliums, &c., in pots, should now be plunged and liberally supplied with water. The same applies to Chrysanthemums. They should not become pot-bound, but have plenty of pot-room for the present, and be plunged in a border full in the sun. Young stock may be increased to flower in small pots. M. T.

FORCING PEACHES—TEMPERATURE.

IN the April number of the 'Gardener,' Mr Simpson's able article on the temperature of early Peach-houses recommends, I am convinced, a step in the right direction. I fully believe with him that the rule generally laid down is too slow work, and that they require more heat and moisture than was formerly supposed. Often has it been written by good authorities, that a damp atmosphere during the flowering of the Peach was fatal to the setting of the crop; but my experience tells me, like Mr Simpson's, that they are greatly benefited by it, providing the minimum temperature does not fall below 50°, and plenty of air is given on every favourable opportunity in the daytime. It is true they will set with a minimum of 40°, but the air in that case must be kept dry. I had an opportunity of proving this last year, for during the severe weather of January 1871 I had a small house here in full bloom, and being heated only by a small flue, the thermometer on two or three mornings stood at 34°; but the air being kept very dry and the days being sunny, plenty of air was admitted, and every bloom seemed to set; but they made very slow progress, and were not ripe until June, although they were started December 1st—very slow work; but, however, that was following something like the rule laid down in times past. I suppose ripe Peaches in April and May were seldom produced at that time, except from pot-trees in pine-stoves or early vineries: that they are produced in abundance at that time now, proves that a step has certainly been gained. To effect this, Peach-houses for early work must have a powerful command of heat, with means for plenty of ventilation; and then I

Digitized by Google

say start with a minimum temperature of 45°, increase it to 50° when in bloom, 55° to 60° as soon as set, and to 65° after stoning. Allow a rise of 10° in dull and 20° in bright weather for day temperature; syringe once or twice a-day according to the weather, from the commencement of forcing until the fruit shows signs of ripening, and even then sprinkle the floor of the house occasionally: of course when in bloom it must be done with caution, so as not to knock the flowers all to pieces, but merely damp them lightly over; this is what I practise, and I have no reason to regret doing so. I find this continual syringing keeps insects, so common in Peach-houses, entirely in check. Our large early house here is 52 feet long by 10 wide, with four rows of 4-inch piping along the front and both ends, heated by Meiklejohn's cruciform boiler. It was started December 1st; the fruit is now (April 4) fast swelling off for ripening. It has never been fumigated once, and there is not an insect visible in the house; on the contrary, the leaves are large and healthy, of a fine dark-green colour, and are pictures of health, thanks to plenty of heat and moisture. One word more in conclusion: pay especial attention to the proper ripening of the wood after the fruit is gathered, as on this success very much depends; if this is neglected, whether you keep a high moist atmosphere or a low dry one during the blooming period, the result would, I fear, be far from satisfactory. H. HARRIS.

NASEBY WOOLLEYS.

[We quite agree, and have for years in succession started a Peach-house 1st December and gathered first dish about April 24th, but never exceeding 60° till after stoning.—ED.]

NOTES ON SUCCULENT PLANTS SUITABLE FOR OUTDOOR DECORATION.

(*Continued from page* 137.)

UNDOUBTEDLY, had our Notes been issued in a classified manner, this should have been our first paper, as embracing many of the most singular of all plants, and such as are in every way calculated to kindle the devotion and excite the admiration of the most careless observer, in presenting to his gaze an almost innumerable variety of curious forms, Nature having well disseminated in this vast tribe some of her most wonderful productions, in the singularity of their structures and the splendour of their flowers demonstrating the opulence and grandeur of the higher attributes of vegetation. It is to what is more commonly known as Cacti we are now referring, yet nevertheless succulent; as in this respect the quaint Sempervivum Laggerii, which does not exceed half an inch in height, claims a relationship to the huge Cereus of 60 feet. To our mind the genera Cereus stands first from a decorative point of view, as it includes some of the most useful, and produces the choicest flowers, combined with many peculiar inequalities. For while some send up their long, pyramidal, fleshy stems, destitute of branch or leaf, to a great height, others trail along the ground, and run off in all directions. Others again grow to the size of moderate trees, and are furnished in the most grotesque manner, branching off in many parallel and transverse positions. These are often pressed downward by their own enormous weight. Indeed, there is an almost endless variety of them, which puzzles the mind in endeavouring to ascertain what sphere they really are meant to fill. Such mental questions become still more obscure in carefully regarding the fabric of the noble Cereus giganteus looming up from 30 to 40 feet,

Digitized by Google

and towering its stately head amongst its more moderate yet imposing congeners. The whole are characterised by an utter absence of leaves; the stems are ribbed and furrowed, and average from 4 to 20, and are equally varied in the depth of their channels, and are armed along the summits of the ribs with one continued line of hairs and spines, in others with dotted tufts. Nor do these forms repeat themselves, for each differs from another in being pentagonal or hexagonal, more or less acute, straight, or curved; unlike also in their incrustations, and the bulk of their cylindrical, simple, and branching stems. Were these their only peculiarities, they would be sufficient to astonish. But their celebrity is chiefly owing to the magnificence of their flowers, which are also very singular; and it is much to be regretted that the most superb of them are night-flowerers, expanding their gorgeous blooms at dusk, but, alas! only to wane and perish in the morning; thus visiting the earth under the shades of night, like some brilliant phantom, and snatched away as if by some invisible power. *C. Macdonaldiæ*, *C. nycticalus*, *C. crostratus*, *C. Lemairii*, *C. pterogonus*, *C. triangularis*, and *C. grandiflorus*, are all night-blooming species. The first and last named of these, however, are the best, producing flowers of peculiar vividness; others are of a vivid whiteness, purple and yellow, which are nearly as large and more wax-like than the queen of aquatics, the gorgeous Victoria Regia. These are all climbers, and alike suited for stove or conservatory; succeeding well in the humid atmosphere of the stove, where they are not over-particular as to quantity of soil, receiving nourishment from their aerial roots. *C. Mallisorii*, *C. Twcedisii*, *C. Napoleonis*, *C. tortuosus*, *C. Karsteinii*, *C. serpentinus*, and *C. ocamponis*, are also climbers, and form curious objects when trained along rafters and trellises, or winding their serpent-like forms around trees and pillars. *C. speciosissimus* makes an excellent substitute for grafting Epiphyllums on, when the most desirable stock, Pereskia Bleo and P. aculeata, are not obtainable. With such various forms as those which occur in the columnar species, it would be difficult to give any definite rule for their different decorative adaptability. In general, they are best suited for the conservatory; and where quantity is at command, a group in the greenhouse proves very interesting. A few which were formerly included with these, but are now separated under the name of Pilocereus, contain some striking examples. *P. senilis* is a very desirable one, with straight stem, longitudinally furrowed, and the elevated ridges clothed with sharp spines and long white hairs, which impart to it a very hoary appearance. *P. Williamsii* is another fine species, with the lower part of its stem covered with long dark spines terminating in a curious wrapping of white wool-like substance.

Next to these in point of interest, and first for their economic uses, is the genus Opuntia, the Indian Fig tribe, or Prickly Pear, which are also equally varied and singular in their forms, and rank with the Cereus in magnitude. They also possess many qualities which do not belong to the other genera. Amongst them is *O. decumana*, which will serve to represent the others belonging to this order. Unlike the Cereus, they do not ascend in one huge stem, but while young are only provided with a single leaf, from 6 inches to 2 feet long, 3 to 12 inches in diameter, and ½ inch thick. This is soon surmounted by another of the same grade, which in its turn becomes a supporter, and throws out side-growths till the whole eventually forms one enormous intricate mass of curious figures; as they can scarcely be termed leaves, but flat bodies of vegetable matter happily assembled together, yet so confused as to leave no trace of order or design throughout its entire combination, except in the tufts of acute spines, which are dotted at regular intervals over the surface, thus add-

Digitized by Google

ing another interest to their rare conformation. Though all may be said to bear fruit, *O. ficus judica* is the most fruitful. These are produced along the margins, and are hard and green while young; but in gaining maturity become soft, and principally of a dull-red colour, not unlike a badly-coloured bunch of Grapes. They are of various sizes, and in shape something after the style of our garden Fig—Ficus carica. The interior is composed of many small seeds and green pulp, and the flavour is somewhat similar to the Gooseberry. The exterior is also characterised by tiny tufts of sharp hairs, as in the case of those we have sometimes found exposed for sale in London; but, like many other imported fruits, they are not over-tempting in their tarnished half-decomposed state. They also ripen fruit under glass in this country, yet it could scarcely be considered a prudent investment for our great market-growers to cultivate them for Covent Garden, though travellers from Mexico, Brazil, and other parts, tell us that there, in their native habitations, they are much esteemed for their virtues, and supply the natives with food. *O. Raffinesquiana vulgaris*, *O. humilis*, and *O. corrugata*, are quite hardy, which renders them exceedingly valuable for permanent planting on rockwork, and also in the succulent bed. In fact, many of the species may be turned out with advantage for this purpose during summer. *O. tuna* forms more of a plexus substance than many of the others, from which beautiful examples of meshy bags, baskets, vases, &c., are fabricated. Some of the finest illustrations of these we have seen are in No. 1 Museum, in the Royal Gardens, Kew. *O. cochinillifera* furnishes the principal pasturage for the Cochineal insect, which is so much valued for manufacturing purposes, in producing carmine, and giving scarlet and crimson colours. The insect itself resembles a lusty example of our common garden pest, the mealy bug.

The genus Mammillaria is certainly one of the most interesting in all the succulent family, not only for their grotesque aspect, but for their dwarf shaggy yet elegant little structures, which render them so ornamental, and desirable for furnishing the smallest greenhouse, or the interior of rooms and window recesses. Their beauty in the last-named places is astonishingly heightened when their rigid forms are contrasted with such as a Wardian case of graceful Ferns. Indeed, the parlour gardener need desire no more to impart interest, when all that was once fragrant and gay (but deciduous) is left desolate. In addition to the effect produced in such capacities, they succeed well outdoors in summer, and being the dwarfest of all Cacti, they can be conveniently introduced into small spaces. *M. vetula* and *M. nova* are quite hardy, and very useful for bedding. *M. Parkinsonii*, *M. bicolor*, *M. pusilla*, *M. rodantha*, and many others, are well adapted for this. The whole are of dwarf growth, none exceeding 18 inches, and principally of perpendicular habit, and many seemingly of no other substance than aggregated masses held together by and wrapped up in an impenetrable intertexture of various coloured hairs, wool, and spines. Yet with such enchanting forms and glorious flowers how seldom do we find Cacti cultivated! Rarely are they granted a better place than some dark and remote corner stage in the greenhouse — indeed oftener under it altogether, where their many interesting features never develop themselves. Certainly they are worthy of a better fate than is thus assigned them! There are different opinions entertained as to the most suitable composts for growing them in. Formerly strong mixtures with odious manures were applied, and advocated for them. In support of this treatment it was argued that their native abodes were in luxurious plains of vegetation, which amply supplied their wants in this respect. Such statements, however, by no means obtain currency from our travellers of the present day,

Digitized by Google

as they find them growing amid barren rocks, and dispersed over the arid wilds and sandy deserts of Mexico. Therefore it is naturally to be inferred that manure is one of the Cacti's greatest enemies, and should never be used if well-grown examples are desired. A most suitable compost is loam, silver-sand, peat, and broken bricks or lime-rubbish, in equal parts. The pots which are to be used should be three parts filled with drainage, as they are very impatient of superfluous moisture lodging about their roots, which ultimately causes damping and premature decay. In the operation of potting, the soil should be entirely removed from the roots, and the whole of the roots cut off, then inserted and placed in any close structure until a little established. Being thus deprived of their roots, no water should be given till an indication of growth is perceived.

Propagation is easily accomplished by cuttings off sets, which, after being carefully taken off, should be laid on a shelf till dry, then potted and retained in a close atmosphere till sufficiently rooted prior to removal into cooler quarters, giving liberal supplies of water during the summer months, but gradually withholding it towards autumn, when they should be kept quite dry in a temperature of 45° throughout the winter. Even then many suffer from the ravages of damp, often rotting at the base of the stem. Such should have the decayed part entirely cut off and be placed in a warm dry atmosphere till rooted, and again potted. Indeed, the vitality of these plants is so great that we have now a healthy example of the Mammillaria which had all soil removed from it three months ago. Generally the month of May is the best time to pot them, and propagation may be successfully done at any time. From the very dwarf and slow growth of the Mammillarias, it is necessary, when tall plants are desired, to graft them on strong and quick-growing kinds. Any or all of the Cereus before mentioned as climbers make good stocks for such, growing them to the required height; then the scion must be carefully placed on the stock and kept in a close place till it has sufficiently taken before removal into an airier place. We have refrained from entering into anything like a descriptive list of this numerous species.

The following few are well worthy of cultivation :—

Cereus candicans.
" chilensis.
" euphorbioides.
" gemmatus.
" geometrizans.
" Jamacaru.
" multangularis.
" niger.
" peruvianus monstrosus.
" strictus.
" strigosus.
Mamm. angularis.
" crucigera.
" dolichocentra.
" elephantidens.
" flavescens.
" gracilis.
" haageana.
Mamm. longimamma.
" magnifica.
" Newmanii.
" phymatothele.
" straminea.
Opuntia albicans.
" Brasiliensis.
" crassa.
" elatior.
" ferox.
" glaucophylla.
" horrida.
" involuta.
" minacantha.
" nigricans.
" pulverulenta.
" variegata.

J. M.

(To be continued.)

Digitized by Google

PLANTS SUITABLE FOR TABLE-DECORATION.

CONOCLINIUM IANTHINUM.

Those who know the value of a Hydrangea on a single stem and in a small pot will be able to form an idea of the service that a batch of Conocliniums would render when grown on the same principle. They have been very useful here this season for the dinner-table; and standing in the conservatory amongst Primulas, were admired by all who saw them, the flower being more than twice the size of any on the old plants.

Their cultivation was as follows:—In April I took off some young cuttings from an old plant and inserted each in a thumb-pot in a mixture of peat, loam, and sand; the pots were then placed in a dung-frame and shaded for a few days; when rooted they were removed into the stove, and as soon as they had filled their pots with roots, were shifted into 4½-inch pots, using two parts peat, one part loam, with a sprinkling of silver-sand. No dung of any kind was used, as short stubby plants were the object; but as soon as the flower began to show itself manure-water was given, weak for a few days, afterwards pretty strong, and every time they needed water: the result was, plants about 9 inches high, with large dark-green leaves from the very base, crowned with a flower twice the size of the pot. Care must be taken to keep the syringe off as soon as the plant is in flower, or they will not last long. W. N.

ON MUSHROOMS.

The Mushroom is at best a very precarious and uncertain crop to manage. As I have been successful in its cultivation, perhaps a few words on my method of procedure may not be out of place, to some of your readers at least. A great deal depends on the manner of preparing the manure for forming the bed. If it can be got in sufficient quantity to form a bed at once, the preparation of it will be greatly simplified. The droppings should be tolerably dry to begin with; if they get soaked with rain, it is not easy to get them in a proper state of dryness afterwards. For this reason, an open, airy shed should be chosen, and the droppings spread out over the floor about a foot in thickness, and turned over every morning until violent heating ceases. When droppings can only be obtained in very small quantities at a time, they should be spread thinly enough to avoid all heating, until sufficient be collected to form the bed, when the whole may be thrown into a heap; and when heating commences, turn it over every day, or even twice a-day, until it be in a proper state to make up. I am not

Digitized by Google

careful to shake out all the small straw, as a little does no harm, and possibly some good. Some recommend a little soil being mixed with it: I find it makes little difference whether or not.

The next thing is to have the bed made up. This operation has been described so often that it is needless for me to repeat it. It should be beaten down as firmly as possible. When finished, put in a watch-stick, which observe from time to time, to see that the bed does not heat up too much, which it will not do if the material has been properly dried; but if it should occur, the best way will be to make the holes for the spawn, and so leave it; or, what will be even better, to shake up the whole and remake it again.

As soon as the heat declines to 80°, the bed may be spawned: break the spawn into pieces about the size of a bantam's egg, and place them at about 8 inches apart over the bed; it is not necessary to wrap them up in wisps of hay, as some practise, as there is no fear of burning if the bed be at the declining heat of 80°. In about a week or ten days the bed may be covered. And now comes the question of what kind of soil is best to cover with?

In 1868, from a bed which I made up with all care—the material well prepared, the spawn good, and all other details of culture being attended to—I totally failed to get any produce whatever; and all because the soil was not suitable with which the bed was covered. On examining the bed, I found the manure a mass of spawn, while not a vestige was observable in the soil. This led me to try some other kind of soil; and as I had nothing but the garden to fall back on, or else a large heap of all kinds of garden refuse, I covered over one half of the same bed, after removing the old covering, with common garden soil, and the other half with soil sifted out of the refuse-heap. The result was, that in a few weeks I had as fine a crop of Mushrooms as could be desired; but chiefly from the portion covered from the refuse-heap. Of course after that I stuck to that material, and had no more reason to complain of want of Mushrooms.

Again, in 1871-72, I have proved the same kind of soil against other two kinds, and find it to be by far the best. As a proof, I have gathered, on the average, two dozen of Mushrooms every day for eleven weeks from a bed measuring 12 by 3½ feet. I had the curiosity to weigh some of them, and found many that weighed from 4 to 7 oz. Another thing which I think contributed to the success is, that I depend chiefly on hot manure for atmospheric heat. I fill one of the lower divisions of the house with it, and turn it over every day, adding fresh material as required. I never use the hot-water pipes, unless for a few days when it is necessary to renew the whole fermenting material. The Mushrooms appear to revel in the nice ammonia-charged atmosphere,

Digitized by Google

while syringing is not required at all, or at least very little. I think a good many cultivators err in keeping their Mushroom-houses too hot; I never let the temperature rise much over 50°. The beds may be a little longer of coming into bearing, but the Mushrooms will be stronger, and the bed will continue to bear much longer. When the beds are declining in their produce, a good watering through a fine rose, with water at a temperature of 80°, will almost invariably be followed by another fine crop of Mushrooms; this I have done repeatedly on the same bed. I do not cover the beds with hay, straw, or anything of that kind, as a good many small Mushrooms are unavoidably destroyed in the removing of it to gather the crop. J. G.

LOCAL NOTES ON RARE OR UNCOMMON WILD PLANTS.

NO. I. — ABOUT KELSO.

A WELL-KNOWN adage says, "All work and no play makes Jack a dull boy." This applies to gardeners as well as other people; and there is no better relaxation for gardeners than the practical study of Botany. Wherever he goes he will always find something to interest him; he can find enjoyment where others would find none: it would be of practical utility to him in his daily duties, sharpening his powers of observation, forming habits of order and arrangement, and gaining for him an insight into the marvels of at least one aspect of nature.

To those who contemplate making a commencement of the study of our "Natives," I would recommend the Linnæan system as the best, being the simplest for beginners. Withering's 'British Plants,' by Macgillivray, is suitable. Babington's 'Manual of British Botany' is arranged on the natural system, and is more difficult at first, but in the long-run I think it the best.

I thought the following list might be of sufficient interest to a section of your readers to gain for it a corner in the 'Gardener;' and I trust these Notes may stir up others to send lists of the rarities in their several districts, thereby letting those interested know where to expect specimens; and doubtless many plants at present set down as being rare will be found very far from being so. Within this district are a great variety of soils; it is abundantly wooded and well watered; along both sides of the Tweed are large tracts of highly-cultivated land, beyond which both to the north and south it is hilly, with large stretches of moorland, and the sea is within comparatively easy distance. The geological formation is mainly secondary and primary; up the Tweed is the old red sandstone, downwards it is the new red, the hills being trap.

I have marked with an asterisk those which Babington (6th ed.) excludes from the Scottish flora. In the cultivated ground in the vicinity, *Adonis autumnalis is to be found occasionally; a not uncommon plant is Ranunculus hirsutus. Papaver dubium is not uncommon, but Babington questions its being found in Scotland at all. *Barbarea præcox and *Erysimum cheiranthoides are frequent. Camelina fœtida is common in some fields: I have got a Camelina with globular pouches, which I have not seen described. The Sinapis alba (white mustard) is abundant, Reseda fruticulosa rare; *Silene quinquevulnera

Digitized by Google

is a plant which Babington circumscribes to two stations—Duppas Hill, Surrey, and Wrotham, Kent: I have found it frequently here, and also at Harperton, a farm 4 miles to the north-east. S. noctiflora is common in suitable places—viz., dry gravelly "knowes" in fields. Haddingtonshire is mentioned by Macgillivray as the only station for this plant in Scotland. Torilis nodosa is not common here. Rare plants are *Bupleurum rotundifolium, Fedia dentata, and Asperugo procumbens. Chrysanthemum segetum is "a splendid weed," well worth growing as an Annual; Solanum nigrum and S. dulcamara are frequent. Veronica Buxbaumii, though so lately as 1829 described as British for the first time by Dr Johnston of Berwick on Tweed, is abundant all round here. Anagallis cœrulea is sometimes found along with A. arvensis. The *Euphorbia Lathyris is naturalised in gardens and shrubberies, and from its rigidly erect, symmetrical form, it might be used to advantage in the present style of flower-gardening. The stem is purplish, about 3 feet high, with four forked rays; leaves glaucous, linear oblong, in four rows, the leaf-like bracts being heart-shaped. E. exigua frequent: I have picked up several specimens of this with five rays. A beautiful and peculiar-looking grass well worth a place amongst ornamental grasses is *Digitaria sanguinalis: the first plant I saw of this was five or six years ago at Newtonlees, on newly-trenched ground; its broad leaves at once told me it was a stranger, and seeing, if allowed to remain, it would likely get killed, I lifted it, but somehow it got lost. I saw no more of it until last summer, when I found several plants growing on a heap of turf. (Enclosed is a specimen.) In going down "Susie's Lane" to Tweedside, the Chelidonium majus is plentiful, while hanging from chinks in the wall is the pretty little trailing plant Linaria cymbalaria. Between the lane and Kelso Bridge I have found the following:—*Lathyrus aphaca, much eaten by cattle; *Medicago maculata, *M. minima, and *M. denticulata; all three probably having been introduced with the wool to Galashiels, Hawick, &c., the spiral pods being covered with hooked spines. They are left untouched by cattle, owing, doubtless, to these spines. I may here mention, as an instance of the manner in which plants get introduced to other districts, that a plant of the Maiden-hair Fern was sent from Wales to a friend; amongst the attached soil were seeds of Cotyledon umbilicus, which in due time germinated and became fine plants. Scattered about is the common Flax, Canary-grass, Malcomia maritima, Polygonum lapathifolium, Mimulus luteus, &c. The first time I noticed the Mimulus luteus mentioned as British was in a report of a meeting of the Botanical Society of Edinburgh, published in the 'Scottish Gardener' for September 1860, Professor Balfour having found it at Moncrieffe. I had found it before that near Ednam, two miles to the north-east of Kelso. A. B.

KELSO.

[This Mimulus was found many years ago in Braid Burn—at least a mile from the nearest house: still we doubt its being really British.—ED.]

CUCUMBER-CULTURE.

NO. I.

THE Cucumber (Cucumis sativa) is said by some horticultural writers to be a native of the East Indies. It has, however, been cultivated and esteemed in Africa from a very early period; and in the complaint

Digitized by Google

of the Israelites to Moses in the wilderness, they singularly enough associated their appreciation of the Cucumber with the fish, which they "freely" eat in Egypt. Fish and Cucumbers are now much appreciated together. The very earliest records of English horticulture embrace the Cucumber, and in Edward III.'s time it was common, but was afterwards comparatively neglected till the time of Henry VIII.; and it was the middle of the seventeenth century before its cultivation became general. In England it is very much more esteemed by the mass of the population than in Scotland. In some parts of Bedfordshire—Sandy, for instance—they are cultivated in the open air by thousands of bushels, and supplied to pickle manufacturers for pickling.

At certain seasons of the year the Cucumber is of the easiest possible cultivation, requiring next to no attention or skill. This applies to the summer months. But to supply Cucumbers every day from November till June is a matter that requires great attention and care. When a supply is required the whole year round, the comparative ease and certainty with which it can be accomplished depends of course to a great extent on the appliances at command for such a purpose. When dependent for heat on the cumbrous and untidy dung-bed or linings, it is a somewhat precarious and trying task. On the other hand, with a well-constructed Cucumber-house, efficiently heated with hot water, a constant supply can with certainty be maintained, and with much less labour than with dung-linings alone. Considering, however, that very many growers have yet nothing more advanced than a brick pit, heated by means of fermenting stable-litter, and, where they can be had, leaves, to supply Cucumbers, our intention is to give practical directions for a supply of Cucumbers, say from March till November, by such means, as well as to make some remarks on their midwinter growth in Cucumber-houses heated by hot-water pipes. We may, however, remark, that it is not desired to communicate any information that might be the cause of inducing any to provide at this period of gardening practice and appliances nothing better than dung-heated pits for the growth of Cucumbers from October till the end of June; for although we and many more have bridged this period of the year with Cucumbers by means of fermenting materials alone, it cannot now be regarded in any other light than one of the best illustrations of being "penny wise and pound foolish."

The Seed-bed.—It is then supposed that Cucumbers are desired in early spring, say March. As the first step in the process, it is necessary to get a quantity of stable-litter, and if possible good oak-leaves, well mixed together, in the first week of December. These materials should be shaken up lightly into a compact heap. And in order to sweat or

Digitized by Google

sweeten it, it will require to be turned over at intervals of four or five days, until it has parted with its rank ammoniacal vapours, and assumed a tanned colour. It is then ready to be formed into a hot-bed, for which a well-sheltered site open to the south should be chosen. The bed should be 5 feet high at the back, 4 feet at front, and 2 feet longer and wider than the frame that is to be placed on it. Supposing that Cucumber plants, and perhaps a few early odds and ends, are all that are to be raised in the bed, one light box of the ordinary size will be sufficient. In building the bed (there are not so many good hot-bed builders now as in our young days), shake up the material well, lay it on in regular layers, and beat it well down with the back of the fork as the work proceeds, but do not tramp it. When of the requisite height, place the frame over it at once, and lay 6 inches of finely-pounded charcoal, sifted coal-ashes, or sawdust—we prefer the first named—over the surface of the bed inside the frame. Put on the light, and protect the sides of the bed and frame itself from cold searching winds and rains, which would soon cool it, and keep the frame closed and covered up till the heat begins to rise. Then give air by day, to let any rank vapour that may rise from the manure escape.

Sowing the Seeds and Treatment of the young Plants.—As soon as the heat reaches 70°, and the atmosphere is sweet, soak the Cucumber seeds in water for twelve hours before sowing them. We prefer sowing the seeds in moderately-drained 4-inch pots, in a compost of two parts light friable loam and one part leaf-mould: with this fill the pots half full, and sow two seeds in each, covering them to the depth of half-an-inch; and do not give any water for the present. Plunge the pots about 2 inches deep in the bed, where the bottom-heat will be strong. If watered and plunged deeply in the strong heat, germination is forced on too quickly, and the result is a pale and weakly seedling. In placing the pots, let them incline towards the south, so that when the sun does shine, it may reach the young plants as soon as they are through the soil; and to the same end see that the glass be kept clean, as light at this season is of first-rate importance. When the weather is mild, uncover the glass the first thing in the morning, but cover up in the evening before the temperature recedes too much. Give more or less air night and day, according to the state of the weather, ranging the heat about 70°. When the air is frosty, hang a piece of canvas or woollen netting over the back of the frame when air is on, so as to prevent currents of cold air.

We have always found that the genial heat of the frame and the absence of sunshine at this season render watering unnecessary, and in fact injurious, until the plants have expanded their first rough leaves. When the young plants have expanded their seed-lobes and grown to

Digitized by Google

the level of the mouth of the pots, earth them up an inch or so with the same compost in which they were sown, warmed to the temperature of the frame; and when the rough leaves are formed, fill up the pot. Into this the stems throw out greedy roots, and they are thus dwarfed and strengthened without being potted off from a seed-pan, and to some extent checked in the operation. Water will not be required, if the weather be dull and sunless, till they have rooted from their stems. Care, however, must be taken that a sudden sun-burst does not overtake them in a dry state. When watered, give as much as will wet the whole ball. Their vital action is weak, and in consequence their power of decomposition weak also; and the object being a sturdy well-proportioned plant, a stiff stem, and leaves of good substance, it is one that a superabundance of water effectually defeats. The best way is to grow with as small an amount of water as possible; a minimum rather than a maximum temperature; and to give as much fresh air daily as will dry the foliage once in the twenty-four hours. There is no surer sign that all is going on well than when, on uncovering the frame in the morning, dew-drops are studded round the edges of the leaves.

The state of the bed, after the first fortnight or three weeks, must be carefully watched, and a heap of manure and leaves, in a hot state, should be in readiness to line the bed with, whenever there is any difficulty in keeping the heat at 70°. A little should be cut off the outside of the bed all round, and holes bored into it with a stake, so as to allow the heat from the lining to act into it. The lining should not be less than 2 feet wide, and as carefully made up as the bed itself; and it should be covered so as to prevent rains from washing the heat out of it suddenly. In fact, great attention must be paid to the bed in this respect, to keep up a steady temperature. And as all know who have thus reared young Cucumbers, constant watchfulness must be exercised in the matter of air-giving. Cold, frosty winds, with sudden sun-bursts after dull weather, make these tender plants a most precarious crop to rear successfully and well. A slight shade may sometimes be found necessary when sudden sunshine succeeds a dull time, but the shade is a necessary evil. Damping the surface of the plunging material may be sufficient to prevent the plants from flinching or suffering under such circumstances.

After they have formed their rough leaves, and pushed their leader-shoot, they progress rapidly, and will require more water at the root; and they should be more freely supplied with it, especially if the weather be clear and dry. It is taken for granted that plants raised thus early are not intended for an ordinary Cucumber-frame, to be grown on the surface of the bed, but to be grown on a trellis in a deep brick pit. They

Digitized by Google

should therefore not be stopped, but allowed to grow on with one leader. If stopped, they will make two weaker shoots instead of one stronger one, and will not be ready for the fruiting-pit nearly so soon. As they progress, and expand more leaves, do not allow them to become crowded, nor their points to touch the glass; and as they fill their pots with roots, give them a steady supply of water, always of the same temperature as the frame; and see that the heat is steadily kept up by turning the linings, and adding fresh warm material to them. Sometimes we have reduced the plants to one in a 4-inch pot, or, when two were left, shifted the two plants into 6-inch pots if their appearance indicated that they required more nourishment, or were likely to become pot-bound.

When all has progressed favourably, they are generally ready for planting-out in about five or six weeks after the seeds are sown. In raising Cucumber-plants as has just been described, we have usually sown on or about the 1st of January, and planted them in the fruiting-pits the second week of February.

Fruiting-Pit, Planting out, &c.—Our experience leads us to recommend much deeper fruiting-pits than are generally in use in this system of Cucumber-culture. Deep pits require more fermenting material at first starting every season, but in the after-management the temperature is maintained with much less trouble. We have practised with pits of various dimensions, but found those that are 7 feet deep the most satisfactory. Three feet should be below the ground level, with the drainage so thorough that standing water is impossible. Instead of building these pits on the pigeon-hole and flue system, we would construct them of 4-inch solid brick-work, and in this way we have always found the linings as effective as with pigeon-holes; and there is no danger of the evil effects of steam, nor from mice or rats, which are sometimes very troublesome. The space for the lining should be 2 feet wide, enclosed all round with 9-inch brick-work, to within a foot of the level of the pit, so that the wooden shutters which cover in the linings have a good slope to throw off the wet. Linings last as long again thus enclosed and covered. The illustration, Fig. 3, will best explain the pit we have described.

In preparing a pit of this description for the culture of Cucumbers on trellises, fill it up inside with well-sweetened stable-manure, and, when they can be had, fresh Oak-leaves, previously prepared as directed for the seed-bed. In this case it is advisable that the proportion of leaves should predominate, as the heat will on that account be less violent, but more lasting. Shake it in in layers, and tread rather firmly. This firm body of fermenting material will keep up a steady bottom-heat for a long time. The space for the lining requires to be

Digitized by Google

filled with hot material at the same time; less firmly than in the inside, but quite up to the top of the pit. The soil, consisting of equal parts loam and leaf-mould, or very old hot-bed manure, and a little gritty sand or charred earth, to the depth of 10 inches, should be

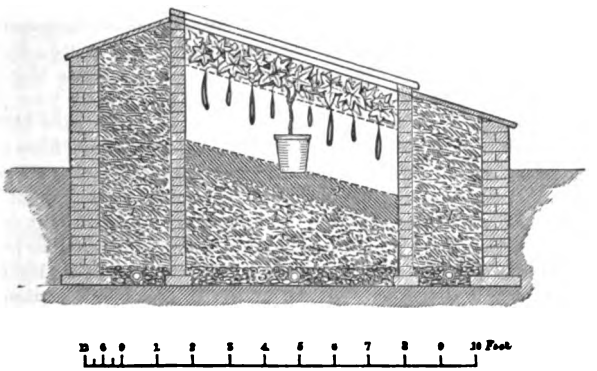


FIG. 3.

1, 1, 1, Dung and Leaves. 2, Soil.

put in the pit at once. Then knock the bottoms out of 11-inch pots, and place them on the surface of the soil, one in the centre of each light, and fill them up with soil. In these pots the plants are planted, and are thus raised nearer the light and trellis, and can consequently be got sooner into bearing than otherwise. The trellises generally used are of light pieces of wood or strong wire-work, with meshes 4 or 5 inches square. They should not be nearer the glass than 15 inches, which gives space for the foliage, and, after the fermenting material has subsided a few inches, about 2 feet for the Cucumbers to hang down.

GOLDEN-CLOUDED IVY.—This is a beautiful Ivy for ornamenting rockwork as it is seen with us. It does not grow so quickly as the common green, and most variegated Ivies do not grow so quickly as it does; still when it is well established it makes growths several feet long in a season, and as it gets older it seems to develop a finer variegation. In summer, when it has just made its young growth, it has a more beautiful appearance than it has at any other time. Of several variegated varieties that we have it is the best; the others are not decided enough in their variegation to be highly thought of. Small nicely variegated twigs of the golden-clouded would be very useful for mixing amongst cut flowers. I have used them for that purpose late in the season when flowers generally are scarce. But no doubt the plants will require to be good-sized before they will allow much cutting at. R. M.

Digitized by Google

A FEW WORDS UPON LYCOPODIUMS.

UNDER the above heading in your number for February 1872, page 85, your correspondent "J. H." gives some very useful remarks on the propagation and growing of the Lycopodium. I hope he will excuse me if I say that he might have gone further in explaining the culture, and that he has stopped short in the propagation. As the above is a special favourite of mine, and I grow a few for exhibition yearly, I beg to offer my experience, as "J. H." and I rather differ in our mode of culture. First, then, to propagate the Lycopod with certainty, no matter whether you have roots attached to your divisions or not, if it is to be a panful that is the aim, fill your pans half full of crocks, cover with sphagnum or moss, fill up with good fresh fibry peat and sandy loam, with a good admixture of sand and crocks, surfacing all over with rather finer soil; insert young clean tips of the variety wanted about 2 inches apart, water with a fine rose overhead, then cover with a hand-light or globe—this will prevent the young plants from flagging, and is indispensable in a greenhouse. When the young plants have made a little growth, tilt the light a little, and finally remove it altogether. A pan of the L. stolonifera section will be fit for exhibition in four to five months. L. denticulata, of which there are two varieties — L. denticulata aurea, tipped with cream colour, is very handsome in the winter months, but not such a free grower as the green one; L. denticulata, the common one, does well for decoration purposes. Procure a piece of wire-netting, making it into the shape or size you fancy—Mushroom or cone shape looks very well; fill tightly with wet moss or sphagnum, introduce some fine damp soil through the meshes of the wire amongst the moss, divide your old plant into small pieces, plant a small piece in every mesh if you want a plant fit for show the first season; that done, a gentle watering with a fine rose will finish, only if you can get it under a hand-light you can make sure of it—in fact, all the Lycopodiums will do if they never see the sun, and do best in a close, very moist situation, and do not like watering overhead. Let me tell "J. H." that he would find himself disappointed if he were to try to grow the twelve varieties he has named in a greenhouse proper, L. denticulata excepted. L. casia does well in a pine-stove, but will not do in a greenhouse. Round the edge of a pot or pan, and trained upon a trellis such as I mentioned for L. denticulata, it forms a fine contrast to the others with its fine bronze foliage.

J. T. BURNS.

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

ACACIAS.

THE Acacias are a useful class of plants, as they can be wintered in any house where the temperature ranges from 35° to 40°, care being required not to over-water them in the short days; but as the days lengthen, and sun strengthens, let them have all the benefit of the sun possible, when they will begin to show signs of moving, when every attention should be paid to them with water. If allowed to come into bloom without any assistance, they will stand longer in

Digitized by Google

bloom, and be richer in colour. When done flowering, prune back into shape, when they may be put in a frame for a short time. If the weather is bright, let them have a gentle touch with the syringe in the afternoons. In about three weeks let them be examined, when those that require repotting should have pots a size larger, using half loam and peat with a good dash of silver-sand. If a cold frame can be had, place them in it, and keep it a little close for a few days, shading if the sun is at all bright. When they begin to grow, give more air and less shading. If the frame is a movable one, let it be raised 6 inches from the ground by placing a couple of bricks under each corner; this will give a good circulation of air, having the lights at hand to put on in case of heavy rains. The pots should either be placed on coal-ashes or boards, or whatever is at hand, so that it will keep worms from getting into the pots. Let them have every attention in watering throughout the growing season, and on very bright days throw a light shade over them for a couple of hours, doing away with it as they finish their growth, when they should have full exposure to the sun, so that the wood gets perfectly ripened before the short days return again. Cuttings root readily if taken off at a joint, and put into a pot of sand and leaf-soil with a bell-glass over them, and placed in a gentle heat.

LANTANAS.

These are fine autumn decorative plants, some of the newer sorts being a decided improvement on older varieties. The many different shades of the flowers make a collection of them interesting.

With a little assistance in the way of heat, large plants can be grown in one season, in comparatively small pots. Cuttings which were potted off a month ago, will have got over the potting and started to grow. At this stage, and all through the growing season, let them have a night temperature of not less than 65°, with plenty of moisture, allowing the house to rise to 80° and 85° by day, shutting up early in the afternoon, to retain all the sun-heat possible, when the plants should be well syringed overhead. Before requiring another shift, it should be decided in what form they are to be trained. If bush-form, which is the most common, pinch the leading shoot when about 9 inches high, when the side-shoot will soon begin to push. Pinching should be attended to regularly as long as required, not letting the shoots run beyond, perhaps, two pair of leaves further than necessary. This both weakens the plants and loses time. The last pinching, especially, should be performed at one time, so that the plant is in flower at every point at the same time. We are rather partial to standards, from 1 foot to 18 inches high, in 7- and 8-inch pots, trained the

Digitized by Google

same as Tree Mignonette. These are nice objects to mix amongst zonale Geraniums. Most of them being of a yellow or orange colour, they group well with the Geraniums. If removed to a cooler house just as the flowers begin to open, they will stand longer, and the colour will be richer. The last pinching should be done about six weeks before the plants are required to be in flower. They thrive well in a mixture of fibry loam and leaf-mould, with a sprinkling of silver-sand. After the last shift, and when the pots are getting full of roots, the plants will be greatly benefited by regular watering with manure-water made of either deer or cow dung, with a little soot mixed along with it. When the plants are done blooming, let them be well ripened off, much the same as Fuchsias, then store them away in any out-of-the-way place all the winter, just keeping frost from them, until the following February, when they can be placed in a Vinery or Peach-house at work, where they will soon break, when cuttings can be taken, and the old plants treated much the same way as Fuchsias in repotting and pinching, when they will come in very early. Many of the varieties are handsome as bedding-plants, being extremely pretty as an edging to either Coleus, Verschaffelti, or Iresine Lindenii. When so treated, they require pegging down. A. H.—T.

CAMELLIAS AT LYTCHETT.

SOUTH LYTCHETT, four miles from Poole in the county of Dorset, and two from Upton House, which has become known to all the world through the Tichborne inquiry, is the seat of Mr Fryer, a country squire, and some time an M.P. in those parts, if we remember right. However, we are not particular about these matters, but only want to speak of the productions of the soil of that by no means fertile region of these islands. Lytchett is noted particularly for its outdoor Camellias, although those in the large conservatory are particularly fine, both planted out and in pots. Attention has lately been called in the pages of a contemporary to the large Araucaria imbricata planted in 1822, which is now 44 feet high and 5 feet in girth 4 feet from the ground, 27 feet in spread of branches, and feathered to the ground. Near it stands a Taxodium distichum 60 feet high, 8 feet 6 inches in girth at 2 feet from ground. Other remarkable trees might be mentioned; as, for instance, two standard Magnolia grandiflora, which flower very freely, as well as those on the walls.

Mandevilla suaveolens flowers on a south and west wall, and matures its singular seed-pods. Clianthus puniceus also flowers splendidly on a south wall, but was killed down by the winter of 1870. The finer Tea, Banksian, and Bourbon Roses also do well, as

Digitized by Google

might be expected; and Fabiana imbricata, Bignonias, Escallonias, and other shrubs which are not quite hardy north of the Tweed.

But to come to the Camellias, they are fine indeed. On a western aspect, with only a 10-feet wall to break the east and north winds, are splendid bushes of Double White, Lady Hume's Blush, Fordii, Rosa mundi, Bealii, Myrtifolia, which flower freely in mild seasons by Christmas. The plants are in the most perfect health, so thick that the hand cannot be pushed amongst the foliage; denser than any Portugal Laurel, and every shoot studded with flower-buds. The trees are round-headed like a Portugal Laurel, and stand out on the border in front of the wall; some of them are now 2 feet higher than the wall, and 14 to 16 feet wide close to the ground.

In another part of the garden, and facing the south-east, but under a narrow covered pathway entirely open on one side, are also very fine plants, in the most perfect health, of Fimbricata, Coccinea, Bruceana, Delicatissima, Hendersonii, Duchesse de Orleans, Doncklaarii, Americana, Lady Hume's Blush, and Double White. Mr Menzies, the gardener, has raised many seedlings from these, some of which are promising; among which are several varieties of Doncklaarii, very distinct and striking, but still all more less like the original, but more robust.

The masses of Camellias in the conservatory are exceedingly fine, the foliage so dark, so glossy and thick, like green porcelain, the flowers so rich in colour and substance. Those in pots are in scarcely inferior health—in pots ridiculously small for the size of the plants; but Mr Menzies does not believe in large pots, but feeds with guano, and treats them almost as aquatics, so much water does he give.

The moist mild climate of the south coast no doubt has a deal to do with the success of the Camellias at Lytchett, but it has not everything to do with it; the soil is of a peaty nature in which they are planted. Their planting originally was simply a bold experiment, which has been eminently successful. Plants take some time to get established and start away freely—a number of years, we should say, as with Magnolias—but they amply repay a few years of waiting. They do not, be it observed, even on the south coast, start away at once into robust growth out of doors. We have heard of the Camellias at Osborne, Isle of Wight, at Battle Abbey, and at several other places in Devonshire, and southwards towards the Land's End; and we have seen some fine examples of Camellias at places many miles removed from the coast; but would be glad to hear of any better than those at Lytchett, and would go a good many miles to see them. We have seen enough, however, to be convinced, with the assistance of our own experience, that the Camellia is not half enough planted as a hardy shrub—hardier, we believe, than the Portugal Laurel. THE SQUIRE'S GARDENER.

Digitized by Google

THE NEILL PRIZE.

THIS endowment of the late Dr Neill's—to be triennially awarded to celebrated Scottish Botanists and practical Horticulturists alternately—has just been awarded by the Committee of the Royal Caledonian Horticultural Society to Mr Andrew Turnbull, Bothwell Castle. We are certain that all who know Mr Turnbull will agree with us that the Committee are to be congratulated on the choice they have made. Few Horticulturists in any country have manifested equal energy and skill in the various branches of Horticulture. He has long been looked up to in Scotland as a first-class cultivator generally, and conspicuously so in his having long held the very foremost rank as a cultivator of one of the, if not the, most difficult genus of plants in cultivation—namely, Cape Heaths—and has been pre-eminently successful as a raiser of some of the very best varieties of Heaths in existence. But we are certain that the adjudicators in the case of the Neill prize have had no cause to found a claim for its recipient in this instance on any specialty, but in his long and successful career as a general horticulturist, and it has been a career as honourable and unsullied as it has been successful. For 45 years he has served the successive owners of Bothwell Castle, who have one and all held Mr Turnbull in the very highest esteem. As a man of the most sterling rectitude of principle, he can have no superior. These, in addition to an unostentatious and rather retiring bearing, have for a length of years placed him high in the esteem of all who had the pleasure of his acquaintance. Long may he live to enjoy the prize he has so eminently deserved! The prize amounts to about £60, and is the highest honour the R. C. H. S. has in its gift.

A MIXED FLOWER-BED.—I have been thinking of a flower-bed that has been made up of mixed plants, and that was planted out the last in the season. It is of a good size and somewhat Pear-shaped, standing by itself on a pleasing sweep of lawn. A good deal of other bedding was done at the same place where I saw this mixed bed, but, notwithstanding that, it was the best, to my taste, of any. It was gracefully made up in the centre with rather tall Acacias, Lophantha, rather tall scarlet Geraniums that had got too large to be retained in the conservatory, Melianthus major, Castor-oil plants, Solanums, Chinese Maize; and round these to the edge was a mixture of small foliaged and flowering things, such as Euonymus variegatus, Lantanas, Centaureas, Cupheas, Tricolor Geraniums, Lobelias, Echeverias, &c. I believe that it is not so very often that one sees a really good mixed bed that always pleases, and has always something new to attract your attention as you inspect it; and it may seem rather odd to say that a bed made up without any previous planning, any further than making the best of the stuff at the time, should look better than others that gave far greater anxiety. R. M.

Digitized by Google

WIRING GARDEN-WALLS.

I HAVE noticed in the pages of the 'Gardener' some remarks about Wiring Garden-Walls, and in the last number "Ye Ken Wha" sounds a note of warning, and tells us a little of his experience and observations about those things as practised years ago. He seems much afraid that rule-of-thumb men, as he terms them, should fall into this dangerous network, and by so doing, as he would lead one to infer, they would not be able to ripen their fruit.

I am not aware that there is any great danger of many persons running into much expense with this matter without first being pretty well aware of what they are about.

No doubt "Ye Ken Wha" has put forward a very precautionary warning, perhaps much needed by amateurs, and especially those in the northern portion of Great Britain. Undoubtedly wiring of walls has much to commend it in many places, and under a variety of circumstances, and where it does answer, it is well to know how it answers; but as the first short notice of it in the 'Gardener' had reference to a garden in the south of England, of course wiring of walls in Scotland may not answer so well. We have heard a good deal advanced both for and against the use of wire against walls, but I question if rule-of-thumb men are so liable to fall into expensive mistakes as they would do by adopting the wiring of walls without being pretty sure of what they were about.

We have seen wiring of walls in practice for more than thirty years, and at different places, and for very different reasons. The first we remember of seeing was in the garden of a London merchant, who took much interest in his garden. He had a new wall in part of his fruit garden. He had much pleasure in seeing *good walls*, a nice wall, without being torn and pock-pitted with cast-iron nails, making nests wherein the various tribes of insects found a convenient place to deposit their eggs, nourishing fresh broods to sally forth to prey upon both foliage and fruit. Where the foliage is impaired by these predatory creatures, even should the fruit not be much injured in the opinion of a casual observer, still it is just possible matters may not be altogether satisfactory to one who feels great pleasure in growing fruit to the best possible perfection under their own eye in their own garden. This was before galvanised wire was in use as now. This gentleman had wire stretched between the lines of bricks, so that the wire was scarcely observable where the trees did not reach the wire, being held to the walls by small iron hold-fasts. Here every heavy shower of rain to a great degree washed down the wall as well as the tree; and when they used the engine with pretty good force, the wall had far greater chance of being washed down clean than it could have had under the nailing-to-the-wall system. Again, another plea for wiring walls, and for a very different reason: some years ago, where I was, the garden-walls had been built with very inferior-tempered mortar, and the bricks had been set on edge—a penny-wise-and-pound-foolish plan; however, this I had nothing to do with; the walls were there, and very troublesome affairs they were. I could hardly drive a nail into any part of them without running the risk of displacing a brick. What was to be done? Pull down, or rebuild, or wire them? Why, they would hardly hold a hold-fast firm enough for the wire. The plan which was adopted was something as follows: iron bolts were made long enough to pass right through the wall; these passed through a piece of wood in front of the wall, of about 2 inches wide, by about one and a half inch thick, and behind the wall each bolt of iron passed through another piece of iron, which

Digitized by Google

was flat against the wall, sufficiently long to get a bearing on two or three rows of bricks; a screw here held all firm; two bolts passed through each piece of wood. These fastenings might have been from 5 to 6 yards apart; several hundred yards were done so, and large mesh galvanised wire was then nailed against these battens of wood.

There is one thing which I don't think has yet been noticed in this discussion which this wiring of walls has in its favour—a freer circulation of air passes about the trees, being very beneficial in hot seasons, as we have often felt the *Peach-wall* when it became unpleasant to hold the hand close against it for ten minutes. We have seen gardens where the Peaches were all unfastened some time during winter, and allowed to remain so, to prevent their too early starting. Where wire is made use of this precaution will not be necessary. There cannot be anything against galvanised wire as to unsightliness, it being all but invisible at a few yards' distance. G. DAWSON.

HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY, April 17th.—This show, like the last, was again held in the conservatory; and though the Azaleas, which were intended to be the main feature, did not present any advance in a cultural point of view over those exhibited in former years, they held their own; and the other departments of the Exhibition were in all respects excellent, rendering it a success only second to the Hyacinth Show. The day was fine, and there was a good attendance of visitors, among whom were two of the young Princes from Marlborough House.

In the open class for nine Azaleas, Messrs Lane of Great Berkhampstead stood first with pyramidal plants, ranging from 3 to 4 feet high. President Humann, The Bride, and Kinghorni were in excellent bloom, especially the first named. The others were Eulalie Van Geert, Souvenir de l'Exposition, Stella, Roi Léopold, Comet and Perfection. Mr Turner of Slough was second with a group of excellently-bloomed plants, mostly grown with bushy heads on stems from 6 to 12 inches high. These were masses of flower, and consisted of such brilliant-coloured varieties as Stella, Eugène Mazel, salmon scarlet with purplish crimson blotches; Hooibrinkii, and Triomphe de Gand. Alexander II., Belle Gantoise, and Princess Eugène made up the remainder trained in this form, the other two being well-flowered plants of W. Bull and Louise Margottin. In the amateurs' class for six, Mr G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., was first with plants about 4 feet high, in very good bloom. In the nurserymen's class for six, Messrs J. & C. Lee of Hammersmith had a first prize; and Mr Turner and Mr Wheeler took the prizes for single specimens.

Class five was for six forced Rhododendrons. Of these Messrs Lane were the only exhibitors, taking a first prize for a fine group, in which Fastuosum flore-pleno, Lord John Russell, Madame Van de Weyer, and Sherwoodianum were the most conspicuous. Messrs Lane were also first for cut trusses, among which they exhibited Joseph Whitworth, Sir Robert Peel, and other fine varieties. They likewise sent an excellent group in the miscellaneous class, taking for it an extra prize.

Auriculas were shown in considerable numbers, as in addition to the Society the Metropolitan Floral Society likewise offered prizes. Mr Turner of Slough was first for twelve with Miss Giddings (Read), Smiling Beauty (Heap), Com-

Digitized by Google

petitor (Turner), Incomparable (Taylor), Col. Champneys (Turner), Metropolitan (Spalding), Ne plus Ultra (Fletcher), Alderman Wisbey (Turner), Alderman Charles Brown (Headley), Maria (Chapman), and Catharina (Summerscales). This collection was very fine both as regards the size and number of the pips on each truss. Second came Mr James, gardener to W. F. Watson, Esq., Isleworth. For six the Rev. H. H. Dombrain, Westwell Vicarage, Ashford, was first with trusses in which the pips were very large without being coarse. The varieties were Mayflower (Traill), Model (Gains), George Lightbody, Pizarro (Campbell), Waterloo (Smith), and Lancashire Hero. Mr James was second.

In the Metropolitan Floral Society's classes the Rev. H. H. Dombrain was first for six, Mr James second, and H. Little, Esq., Twickenham, third. The remaining collection came from Mr Butcher, Camberwell. For one Green-edged variety Mr Turner was first with Leigh's Colonel Taylor; Rev. H. H. Dombrain second with Admiral Napier; and Mr James third with Lovely Ann. For Grey-edged the same exhibitors took the same relative positions for George Lightbody; also for White-edged with John Waterston, and Ne plus Ultra second and third. For selfs the Rev. H. H. Dombrain was first with Spalding's Metropolitan, very fine in truss and splendid in colour; Mr Turner being second with Pizarro, and Mr James third with Mrs Smith.

Of twelve Alpine Auriculas Mr Turner sent a splendid group of fine varieties of his own raising. For this he took the first prize, the second and third going to Mr James, and Mr Goddard, gardener to H. Little, Esq., Twickenham.

Of Pansies in pots very good examples were shown. The prizes went to Mr James; Mr Hooper, Widcombe Hill, Bath; and Mr Ware, Tottenham.

The best collection of hardy spring-flowering plants in a basket not exceeding 4 feet in diameter came from Mr Ware, Hale Farm Nursery, Tottenham; a truly charming group it was, and very effectively arranged. Among its occupants were Lily of the Valley and Solomon's Seal, Primula cortusoides amœna, Trillium grandiflorum, Trollius altissimus, the Lady's Slipper, varieties of Iris pumila, and numerous other plants. The second prize went to Mr G. Wheeler.

The Miscellaneous groups formed more than one half, and to most persons the more attractive half, of the Show. Foremost among them was a large collection of valuable plants sent in beautiful condition by Messrs Veitch of Chelsea. Among them may be noticed two very handsome Dracænas—Weismannii and Younghii, the latter with very broad deep bronzy foliage—Croton Weismannii, a very handsome kind, Cypripedium niveum figured in No. 528, Odontoglossum Alexandræ very fine, splendid specimens of Anthurium Scherzerianum, Oncidium hastatum, O. bifolium, Masdevallia Lindeni, lovely violet rose, M. Harryana, and M. Veitchii; a number of Japanese Maples with beautifully-cut leaves, brownish red or green, and several plants of Clematis Lord and Lady Londesborough and Miss Bateman. Messrs Veitch also exhibited a plant of Clianthus puniceus flowered in the open ground, and that freely. Mr Bull sent also a large and well-varied group of Orchids and mixed stove and greenhouse plants, among which we noticed Rudgea macrophylla, a variety of Cypripedium caudatum, Masdevallia ignea, Cypripedium niveum, and several good specimens of other plants. From Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, came a splendid collection of Orchids, in which were very fine specimens of Arpophyllum giganteum, one with nine the other with thirteen spikes—we do not remember ever having seen this plant finer; Cattleya Skinneri, Odontoglossum radiatum, Dendrobium Jenkinsi, and Epidendrum ibaguense.

Digitized by Google

From Messrs Rollisson came an excellent group containing several Orchids; from Mr C. Noble, Sunningdale, a collection of fine Clematis, in which Mrs Howard Vyse, Albert Victor, and Miss Bateman were conspicuous, the first two as mauve blue, the last as an almost white variety. Messrs J. Standish & Co. of Ascot sent a fine basket of Bouvardia jasminiflora, some beautifully-coloured Cinerarias, and a number of the singularly cut-leaved Japanese Maples. Mr G. Bland, gardener to Earl Kilmorey, Gordon House, Isleworth, had a cultural commendation for Anthurium Scherzerianum with twelve large spathes, besides some going off and others expanding. M. Louis Van Houtte of Ghent sent fine groups of new Chinese Azaleas, also varieties of A. mollis. Of the former several received first-class certificates from the Floral Committee. Messrs Veitch sent a small group of excellently-bloomed Azaleas; M. J. Vervaene, Faubourg St Lieken, Ghent, a very good specimen of Beauté Suprême Azalea; Messrs Osborn, a small group of plants; Messrs Rollisson, two fine plants of Chamærops; Mr James, a group of Cinerarias; Mr William Paul, Waltham Cross, splendid stands of cut blooms of Roses, including very large ones of Madame Decour, Paul Neron, Marquise de Castellane, and several of Maréchal Niel 6 inches in diameter. Messrs Kelway & Son, Langport, Somerset, had a fine box of this variety, containing sixty blooms, and from the same plant we understand no less than 120 flowers were sent to Covent Garden on the day of the Show. Mr Ware of Tottenham, in addition to stands of Pansies, contributed a large and very fine collection of spring flowering plants; Mr Hooper, Widcombe Hill, Bath, stands of Pansies; Mr Turner, Slough, a fine collection of Tricolor Pelargoniums and Auriculas; and Mr Wimsett, Ashburnham Park Nursery, Chelsea, a group of Palms and fine-foliaged plants. Several extra prizes were awarded for the above exhibitions, for which we refer our readers to the published prize-list.

Prizes were offered for collections of forced vegetables, but no award was made. Mr Clark, gardener to J. C. Brown, Esq., Horsham, and Mr Batters, gardener to J. W. Fleming, Esq., Chilworth Manor, Romsey, sent small collections.—*Journal of Horticulture.*

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SHOW, April 10.—This Society held its Spring Exhibition in the Music Hall, Edinburgh, on Wednesday, April 10th. Hyacinths and other spring-flowering bulbs formed, some years ago, the chief feature of the spring meeting, but of late years the quantity and superior quality of other early flowering and fine-foliaged plants have increased so much that the show has now become of much more general interest. On this occasion the extent and character of the subjects exhibited were fully equal to the best of former years. It being too late for the Hyacinths, they have been seen much finer on former occasions, although they too were most creditable.

As usual, the Edinburgh nurserymen contributed largely to the interest of the show by the tables of plants which they brought forward, the Messrs Lawson having again filled the orchestra with a large and interesting collection of well-grown Palms, Ferns, Yuccas, Conifera, &c. Messrs Dickson & Co. filled a table with a great variety of plants, inclusive of Dracænas, Pelargoniums, Cytisus Primulas, Ferns, &c. Messrs Drummond Brothers had a tastefully-arranged table, including Amaryllis, berried Aucubas, Orchids, including a well-bloomed Phaius Wallachii, Ferns, &c. Messrs Methven & Sons had a large assortment of interesting plants, including Dracænas, Calamus dealbata, Orchids, Ferns, Rhododendrons, and a well-bloomed Anthurium Scherzerianum. Messrs Downie,

Digitized by Google

Laird, & Laing exhibited a finely-bloomed plant of Primula japonica, evidently a fine spring decorative plant.

Mr Rintoul, of Raith Gardens, had a magnificent plant of Rhododendron Falconerii, with seventeen trusses of bloom. Azaleas were largely exhibited and exceedingly well bloomed, but to our mind far too formally trained and tied. Among stove and greenhouse plants the most noticeable were Dendrobium Paxtonii, Phalænopsis Schilleriana from Mr Paterson, Millbank; Genetyllis tulipifera from Mr Marshall, Kingstongrange; Anthurium Scherzerianum, Clerodendron Balfourii, from Mr Currie, Salisbury Green; and Leptopteris superba, Chelianthus elegans, from Mr Gordon, Niddrie.

Mignonette was as usual exceedingly well grown, especially those of Mr Gibson, Edmonston. It is a pity that these had to be shown on the floor of the anteroom.

Deutzias formed quite a feature of the show, and were healthy and well flowered.

Messrs Methven & Sons were the only competitors for Rhododendrons, and their collection was exceedingly creditable, the sorts being first-rate, and the plants large, healthy, and well bloomed, several being 5 and 6 feet in diameter, and having about a hundred blooms on them. Among the sorts Satanella was most noticeable, being by far the finest-coloured pink variety we have seen.

Bouquets were scarcely so fine as usual, with perhaps one or two exceptions. The hand-bouquets were more worthy than those intended for table, which latter were coarse and badly got up.

As might be expected, the display of fruit was limited. The Grapes exhibited were good for the season, Mr M'Taggart, Arniston, having two exceedingly well preserved bunches of Lady Downes; and the same may be said of Mr Temple's bunches, the bloom of which was very fresh. There were several dishes of Apples and Pears, all in good condition, especially those from Amisfield, and good Strawberries came from Mr Stewart, the Glen.

The display of Vegetables was about the average of former seasons. In the collection from Mr Gordon, Niddrie, were some fine heads of his Niddrie Broccoli, good French Beans, young Potatoes, Mushrooms, and Asparagus. Mr Temple, Balbirnie, had also a fine collection, including excellent young Potatoes, French Beans, Asparagus. Rhubarb and Leeks were very fine in all the classes.

The weather was favourable, and, as is usual at these spring meetings, the *élite* of Edinburgh enjoyed the display in great numbers.

Glasgow and West of Scotland Horticultural Society's Show.—The spring competition under the auspices of this flourishing society took place on the 27th March, and was considered by those who have had opportunities of judging to be the finest spring show ever held in Glasgow. Certainly the display as a whole, and the spirited and close competition, were such as to reflect great credit on the horticulturists of the west. The intensely brilliant colouring of Azaleas, Orchids, bulbous plants, &c., was very effectively intermingled with and toned down by the verdant and graceful foliage of Tree Ferns, Palms, &c.

In the open competition for the best table of plants the most conspicuously excellent were the collections staged by Messrs Thyne of Glasgow, and which consisted of magnificent Pandanuses, inclusive of the new and very effective P. Veitchii, Dicksonias, Todeas, Gleichenias, Palms, and Dracænas; while the blooming plants consisted of Cattleyas, Trichopilias, Dendrobiums, &c., among

Digitized by Google

Orchids, with a rich profusion of spring bulbs. The second and third prize collections were also most creditable, and were brought forward respectively by Mr Peter M'Kenzie, Gordon Street, and Mr John James, Maryfield House.

The show of Azaleas was exceedingly good, and the same may be said of Amaryllis and spring bulbs in general. Mignonette and Deutzias were remarkably well grown.

Mr Graham, Garskube, competed very creditably for the prize offered for the best example of table decoration, consisting of flowers and fruit very tastefully arranged.

The Cyclamens exhibited by Mr Lewin, Drumpellier, were very well got up, and one would suppose cannot fail to assist in bringing those lovely old-fashioned spring flowers more into favour than has been their lot for some time.

Mr Methven, Blytheswood, exhibited two very fine Pine-Apples and a dish of Strawberries, which, with six bunches of black Alicant Grapes from Mr Paterson, West Balgray, and a Pine and Pears from Luss, constituted the display of fruit.

The exhibits by the amateurs, which were confined to a special apartment of the hall, must be regarded as most creditable to the amateur horticulturists of Glasgow, and deserve all the encouragement which this Society offers them.

As usual there was a cheering throng of visitors both in the afternoon and evening, and we have every reason to regard the exhibition as a decided success.

A FEW NOTES ON ROSES.

THE Tea varieties of Roses may be had to flower during the greater part of the winter; and no doubt Roses of any kind in that dull season may be said to be acceptable, but still Rose-blossoms never look so well as they should do, excepting they have pleasing foliage to accompany the flower—and this seems only to happen when the day begins to lengthen, and when they grow somewhat quickly before flowering. We do not grow so many varieties of the "Teas" for early work. I will name a few of them; and to begin, I will state at once that we have more of Madame Falcot and Isabella Sprunt than all the others put together, because we found them so useful and free-flowering for button-hole work. Both of these are beautiful in the bud, there being only the difference of a shade between them in their golden colour. Madame Damaizin is a pretty and useful flower, free-flowering, and a little resembling in the bed the common monthly in colour, only higher. Souvenir d'Elise is another good sort, somewhat resembling the latter. Safrano is a useful and free-flowering one. Marechal Niel, from some cause or other, has not done so well with us in pots.

Towards the end of March come in bloom our Hybrid Perpetuals; and a few fine flowers of such as General Jacqueminot or Duke of Edinburgh are always acceptable, and make a decided mark in the former section.

When once a fair start has been made with getting Rose-blossoms—say in the end of February—if a good stock of plants exist that have been well prepared the previous year, the supply may be said to be continuous, because the Tea Roses may be compared to the common monthlies in continuing to grow and flower. As soon as the flowers have been cut from them, they should be pruned in a little, when they will soon push away again, showing their perpetual disposition.

Last year we experienced a dearth of flowers to some degree just a few weeks

Digitized by Google

before they began to come in bloom out of doors, having kept up a supply both for table-pots and other decoration from the first week in March. This, with limited convenience, and not such a good stock of plants, makes them rather hard to meet those out of doors. We saw how we could have made up for the deficiency had we made preparations for the end in view some months previously by planting some good sorts at wall-sides, and training them up where they would have a southern exposure, by which means, as is well known, Roses can be had very considerably earlier; and, if I recollect right, I have seen Gloire de Dijon in good flower on a south wall in the end of April north of the Tweed. Well, to provide against the same dearth of flowers in another year, last summer we planted some of Marechal Niel and Gloire de Dijon beside lean-to vineries, on spare pieces of ball, and also some of Marechal Niel and Celine Forestier, to make archways of Roses over some of the kitchen-garden doors, where they would not interfere with the fruit-trees. From these this year there is the appearance of a fair harvest of flowers; and a small plant of Gloire de Dijon made a shoot 9 feet in length, which now on many laterals has a flower-bud at every point.

I believe it is a good plan to prune Standards and other outdoor Roses at intervals of different times, if a long and regular supply of flowers has to be forthcoming; and some should be pruned much later than any person who has sympathy with nature in the first instance would be inclined to do. I may state this with what we experienced last year with the depredations of rabbits, for on a lot of dwarfs they preyed upon the plants till we expected no good from them. However, from the beginning of summer the rabbits were completely kept under: the Roses then after all began to come away, and late in the season, when all the others were done flowering so to speak, we had several very useful gatherings of flowers from the plants that were so sorely eaten in.

R. M.

M'LACHLAN'S NEW EDGING-TOOL.

We have much pleasure in stating that, after fairly testing this tool, we find that one man with it does as much work as three or even four men can do with the common edging-tool, and the work is equally well done and with greater ease.

D. Thomson.

Drumlanrig Gardens.

MIMOSA PROSTRATA.—Of all the species of this curious genus this is by far the most beautiful. I recently saw a plant which had been trained up one of the columns in a conservatory, and I thought I never beheld a more elegant plant in all my travels. Growing to the top, its long red shoots drooped gracefully, covering the column with the most elegant drapery imaginable. It grows most freely, and may be propagated readily either from seeds or cuttings. It is so very distinct in its growth, and possesses such peculiar elegance of habit, that I must confess I can compare it with no other climbers or trailing plant whatever. Its shoots are of a red or bright rose colour, no thicker than stout wire, and bear one or two pinnate leaves at intervals of 4 or 5 inches down the stem. I do not know whether it is to be procured at the nurseries. I never saw it before in any collection either public or private, and should imagine it to be as rare as it is beautiful. If any reader of the 'Gardener' who may know it, or has seen it in good condition, will state their opinion, I shall be greatly obliged.

F. W. B.

Digitized by Google

GARDENERS AND THE WAGES QUESTION.

A MEETING of the gardeners of the neighbourhood was held on the evening of the 12th inst., in the Freemasons' Lodge, Brook Street, Broughtyferry, for the purpose of hearing how the desire for an advance of pay had been responded to by the employers. We are glad to report that most of those present have either received or got the promise of an advance of from 2s. to 3s. a-week. Now this is gratifying, and reflects great credit on those employers when we consider that most of the gardeners are engaged at a certain wage until November. But these liberal employers did not let this stand in their way, but in several instances came forward and offered an advance before they were appealed to, and in some cases said that this was only an instalment, that more would be forthcoming—we suppose at the end of the current year. D. J.

Mr Messenger, Horticultural Engineer, Loughborough, has just completed the erection of the Cotton House at South Kensington, for the International Commissions.

MILDNESS OF THE SEASON.—As a token of the unusual mildness of the past winter, perhaps it may be worthy of record that we have this day cut three moderate-sized Globe Artichokes from the open break. This may probably not be uncommon in the south, but when living in Midlothian in the mild winter of 1862-63, it was considerably later before the Artichokes yielded any produce. We may mention that where the plants are growing there is a great depth of soil, and recently trenched. D. M.

DUNLOSSIT CASTLE, ISLAY, 11*th April*.

Calendar.

KITCHEN-GARDEN.

ASPARAGUS not yet planted should have attention before the young growths are too far advanced, as a serious check would then be the result. Abundance of water may be required if weather should be hot and dry. Old beds in full bearing are improved with good soakings of manure-water. Salt sprinkled over the surfaces will help growth and keep weeds down; but if Lettuce or any other crops are growing among the Asparagus, salt would destroy them. All the Brassica tribe are the better of being pricked out before they are planted in the plots, as sturdy growth (which is promoted by pricking out) is secured. Early-sown Cabbage may now be fit for planting out: if planted thickly (say a foot each way), every alternate plant may be cut out when fit for use, and the main crop could occupy the whole space and receive liberal treatment. Mulching and manure-water, when ground is light, is of great advantage to this crop and Cauliflower: more of the latter may be sown for an autumn supply. Also Granger's Autumn and Walcheren Broccolis, Veitch's New Cauliflower, which has proved itself to be such a splendid autumn kind, should now be sown. It should always be kept in mind that the culture of Broccoli, Cabbage, Brussels Sprouts, Kale, &c., in their early stages, has more to do in securing success than is generally imagined. Letting them remain in the seed-bed till drawn up weakly, starving them on dry hot positions, doubling up the roots or pressing them at the collars only, are some of the evils which should be strictly avoided. Slugs and grubs are a great annoyance in most places. Watering the plants at the roots two or three times in the course of a week with lime-water,

Digitized by Google

and then placing a little soot and lime mixed round their collars, seldom fails to keep vermin away. Puddling the roots with a little cow-manure, soot-water, and soil, mixed like paint, is also a preventive. After a season like the past, many seeds are likely to have perished in the ground, especially if of a cold tenacious nature. Let fresh sowings be made before the season is too far advanced. Sow and plant Lettuce: let a full crop be left on the ground 1 foot to 15 inches apart, and plant thinnings on cool rich soil; if in the shade, a succession-crop will be secured. Endive may be sown and treated like Lettuce if wanted. It is liable to run to seed at this season, therefore small quantities of seed should be sown at short intervals. A good breadth of Beet should be sown on deeply-trenched ground, but not with rank manure in it. Sea-kale Beet and Silver do. may also be sown for their leaves. Celery which has been brought forward early in frames or otherwise may now be planted out in ridges, either in single rows or three or four rows in a wide trench which has been heavily manured. Old cow-manure and rotten leaf-mould well mixed is excellent food for Celery; rank growth with this esteemed vegetable is not always accompanied with good crisp produce. The plants generally require to stand a foot or more apart. Good soakings of manure water after the plants are in active growth will do much to help them on. If cold dry weather should set in after planting has been done, "bolting" to seed may be expected, unless careful watering and protection are given. Rows of Peas by the sides of the ridges may be useful in breaking cold winds. Sowings of Peas at regular intervals are necessary when regular supplies are wanted. Broad Beans may still be sown for a main crop. Mulching and watering may now be required for them and Peas, if dry weather should set in. Manure-water is a great help to keep Peas in full bearing for a long period, especially if ground is shallow, dry, and light. Staking should have timely attention; and let the heights of the crops be kept in mind when this operation is performed. French Beans may be sown for a full crop; it is well to sow two or three kinds at one sowing, and a succession will be secured. The stronger kinds stand drought better than the weaker, though the latter come into bearing earlier. Rich soil and 2 feet apart for the rows will suit them. Scarlet Runners may be sown to be kept dwarf for edgings, or in single rows for staking. They (like Peas) do best when the rows are not sown close together. Leeks may be planted when strong enough; they require plenty of rich manure and deeply-trenched ground to grow them fine. Those to remain where they were sown should be thinned in time, and done so that the crop is not injured in the operation. Let Parsnips be thinned when fit to handle; do it in time, as they, like all other crops, are easily injured by crowding in their young state; not less than a foot from plant to plant should be allowed. Carrots may require thinning soon, but better to do it by degrees, as vermin may do it more than desired. Red and White Turnip Radish seed may be sown, but moist cool soil is necessary to grow them: watering is of great importance, otherwise the roots become pungent and unfit for use. Salsafy, Scorzonera, large-rooted Dandelion, and Chicory, may be sown early in the month. The treatment of Carrots suits them, but they require comparatively less care. Cress of sorts and Mustard will do anywhere now, but hand-lights save the seeds from birds, &c. We use them all the season through, and keep shifting the ground among the Currants or Gooseberry bushes. Turnips may be sown in small quantities every ten days. "Fly" will be troublesome. Red and White Stone, Snowball, Yellow Stone, and Yellow Malta, are all good kinds for sowing now. Spinach must be sown often in good and cool ground to keep up supplies. Plant out New Zealand sort 4 feet apart about the end of the month, or sow about the third week, and thin out afterwards. All ground for winter crops should be prepared as early as possible, trenching deeply and manuring well where necessary. Onions may soon require thinning: they are in some places severely thinned by vermin; better to do the work by degrees. When weather is showery, dustings of soot and guano may be given, which assists growth and helps to keep grubs away. Pickling Onions may now be sown rather thickly to keep them small: poor,

Digitized by Google

hard ground suits them; Silver-skinned is a useful kind for this purpose. Rampion, Parsley, and Chervil may be sown to keep up supplies; though they do as edgings to other crops, they are best when treated liberally. Plant out Basil, Sweet Marjoram, ridge Cucumbers, Vegetable Marrows, Tomatoes, and Girkins under protection till they are safe from frost. M. T.

FORCING DEPARTMENT.

Pines.—Succession-plants shifted into their fruiting-pots in March will now be growing freely; and owing to the increased warmth of the sun, less fire-heat is now required to keep up the temperature, and more air can be safely given. The night temperature at 9 P.M. on mild nights may range to 75°, and fall to 70° before morning. Dew them overhead at shutting-up time, and sprinkle the paths the first thing in the morning, and frequently in the course of the day when the weather is bright. When the morning gives signs of a bright day, damp down the fires and keep them as low as possible, starting them in the afternoon just in time to prevent the heat from declining too low at night. Avoid, as the greatest evil in Pine-growing, hot pipes and a hot sun by day. With increased light, heat, and air, they make robust and rapid growth, and more water at the root will be required, and their wants in this respect must be carefully watched. The experienced can tell almost by the look of the foliage when water is required. The inexperienced, however, should carefully examine the soil, and water sufficient to moisten the whole soil should be given when necessary. A bright May after a cold dull spring is apt to brown the foliage; and though much opposed to shading Pines in a general way, yet we prefer a very slight shading for two or three hours in the middle of the day, to allowing the plants to become brown and stunted. A moist atmosphere is, however, in most instances, sufficient in the case of healthy-rooted Pines to prevent browning to an injurious extent. The early-started Queens will now be swelling their fruit rapidly. See that these are kept constantly moist but not wet at the root, and give weak guano-water every time they are watered. Shut up early in the afternoon, so that with sun-heat the thermometer may range from 90° to 95° for a short time. At the same time sprinkle the plants overhead with water at 90°, and sprinkle every available space at the same time, so that the air may be loaded with moisture. The night-temperature for these may be 75° as a minimum, when it is desirable to have them ripe as soon as possible. Any that may begin to change colour by the end of the month should be removed to one end of the house, and kept drier, and have more air, otherwise the flavour will not be so high. Plants that are now just showing fruit require careful attention in the way of watering at the root, and must not on any account be allowed to get over-dry, or a serious check will be the result. See that these have a steady bottom-heat ranging from 85° to 90°. Supply the atmosphere with abundance of moisture in bright weather, and syringe the surface of the bed and about the lower leaves, but not overhead until the fruit has done flowering. Smooth Cayennes, Charlotte Rothschilds and other winter varieties that were shifted into their fruiting-pots in autumn, and have made a considerable spring growth, may now be kept cooler and slightly drier with the view of resting them for six weeks or so before starting them for late autumn and winter supply. On the other hand, others of these winter sorts, that had well filled their pots with roots last autumn, can now be readily started in fruit to succeed the Queens just started, thus keeping up a continuous supply of ripe fruit.

Vines.—Shut up vineries where Grapes are swelling off early in the afternoons, with sun-heat running up to 85° for a time; and start the fires in time to prevent the heat in Muscat-houses from declining below 75° at 9 P.M., and allow it to fall to 70° in the morning. For Hamburgs and others a few degrees less is sufficient. Look over these Vines twice weekly, and rub or pinch off all superfluous lateral growths, and see that the bunches are sufficiently thin in berries before they become too thick to be easily thinned out. Of course, the thinning should be complete at an earlier stage, but where such has not been the case, it is better to go over them a second time than have the clusters too thick.

Digitized by Google

Whenever they begin to colour, gradually withdraw moisture from the air, and give more air, leaving a little on all night. In earlier houses, where the Grapes are perfectly ripe, keep the atmosphere dry and cool. If previous directions regarding the mulching and watering of the inside borders in early houses have been attended to, there will not be much fear of the soil becoming injuriously dry before the crop is cut. Keep a sharp look-out for red-spider, and should that pest appear, attack with a sponge and clean water, or even by syringing the Vines once or twice rather vigorously with clean water, provided there is no deposit in it to settle on the fruit. The water will not do any harm, but hand-sponging is to be preferred. Where the fruit is all cut from pot-Vines, remove the plants, and let the house get a thorough washing, and then be filled with the pot-Vines intended for fruiting next season. These will now be ready to shift into their fruiting-pots, and should be pushed on with a maximum temperature, principally derived from sun-heat, when such can be had. Turfy loam, with a little bone-meal, we recommend for growing these in. Look regularly over later houses, stop and tie them down, as they require this. Thin the berries immediately after they are set, and avoid heavy cropping, especially in the case of Vines on which the fruit is intended to hang through the winter. Young Vines planted in spring will now be making rapid progress, and will require daily attention in the way of tying and removing tendrils, &c. Let these make sufficient lateral growth to cover the whole roof without crowding it with foliage, bearing in mind that the amount of roots produced in the border, and the strength of next season's growth, will be in proportion to the foliage made and matured this season. If their roots are chiefly inside, see that they do not suffer for want of water, especially near the hot-water pipes. A good plan is to mulch with an inch or two of such as old Mushroom-bed manure. In the case of any Vines that may be planted among these as temporary Vines, to bear one crop and then to be removed, stop the lateral growths at the second leaf, and stop the leading growths as soon as they have reached 2 feet beyond the length to which they are to be cropped next year. In the case of those, it is prominent and well-matured buds on the main stem that are required.

Peaches and Nectarines. — Let Peaches commencing to ripen have more air and less moisture. Look over the trees, and put aside any leaves that may be partially shading the fruit, or they will be deficient of that fine mellow colouring indispensable to a fine-looking Peach. As in the case of Vines, let atmospheric moisture be gradually withheld. Crops that are past the stoning process should be finally thinned, and have the night temperature increased to 65°. Shut them up early on fine afternoons with sun-heat at 80° for a time, at the same time syringing the trees freely with tepid water. Give heavy waterings of manure-water when root-waterings are necessary. In tying in the wood in later houses, see that it is not laid in too thickly. Thin the fruit by degrees in the latest houses, leaving plenty to come and go upon till after they are stoned. Keep a look out for green-fly and red-spider, and never allow these marauders a footing. See that young trees lately planted are not allowed to push away a few rampant growths that rob the weaker ones. Stop such, and they will make lateral growths, which can be utilised in furnishing the trees.

Figs.—Early crops of these will be swelling rapidly towards the ripening stage. See that they are—in the case of established trees with their roots in circumscribed space—well supplied with water, and freely syringed every fine afternoon till the fruit arrive at the ripening stage. Where the second crop is forming plentifully, thin them partially out in time. Stop and tie down shoots as formerly directed, and avoid laying in too much wood. We cannot impress too strongly the necessity for a circulation of warm dry air about Figs when the fruit are ripening, for without such the flavour is insipid. A Fig should never be gathered until it opens at the crown, and a drop of juice has protruded from the part, unless when they have to be packed and sent to a distance; then they must be gathered before they become so pulpy.

Melons.—Attend to the impregnation of the female blossoms at mid-day as soon as they are perfectly expanded.

Digitized by Google

Stop the growths two joints beyond the fruit, and as soon as a full crop is set, give a good root-watering, and keep the air more moist, syringing the foliage on the afternoons of fine days, especially those trained in trellises near the glass. When the fruit are well advanced towards full size, give less water, or they will be apt to burst. A good plan is to mulch the surface of the bed with manure. This keeps the soil moist with less watering, and prevents it cracking. As soon as signs of ripening are noticed, see that the fruit is exposed to sun and a circulation of air. Sow and plant out for succession crops, and in making the beds of soil at this season, let it be greater in depth than for early crops.

Cucumbers.—Plants that have been in bearing for a considerable time back will now be benefited by a top-dressing of loam and rotten manure in equal proportions. But if spring-planted ones are now in full bearing, the former may be pulled out, and the space occupied with Melons, if such is desired. Now is a good time to plant a quantity for summer and autumn supply. See that those now bearing heavily are well supplied with water, and syringed at shutting-up time, to keep them clean and healthy. Should thrip or green-fly be troublesome, fumigate on two successive nights, and syringe vigorously immediately afterwards.

Strawberries in Pots.—After the beginning of this month, red-spider is apt to be very troublesome on Strawberries, especially those standing on shelves in hot situations. They must therefore be regularly syringed, except when the fruit are ripening. Strawberries are much improved in colour and flavour by being moved into a cool dry place and well aired after they begin to colour. Water those swelling off freely with manure-water, and let the pots be stood in saucers filled with rich turfy soil, or in pots half filled with the same. When it is necessary to retard ripening fruit, they can be placed in dry cool pits or frames, and air left on all night. All plants done bearing should now be hardened off previous to their being planted out, after there is no danger of their being injured by late frosts. The remainder of the stock of late sorts can now be brought on in cold frames or pits, to ripen just before outdoor crops.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

C. C. C.—For very early forcing, build the back wall above the roof as you propose. In your warm locality we do not think it necessary to go to the expense of chambering and heating the border. If well managed, your project will pay; but if you have everything to learn, we doubt if it will, for you are going to attempt a supply at the most difficult season.

ERRATA IN APRIL No.—Page 177, *for* "Simpson's Patent Wortley Celery Collar," *read* "Simpson's Registered Wortley Celery Collar." Page 193, line 21 from bottom, *for* "15 feet across," *read* "7 feet across."

Digitized by Google

THE GARDENER.

JUNE 1872.

WATERING.

IF we are to accept as reliable the prognostications of the meteorologically wise, the summer on which we have just entered is to be characterised by periods of severe and protracted droughts. The datum from which this conclusion is arrived at is, the high mean temperature which has been registered in February and March, and which was characteristic of the same months of all the driest years from 1826 to the present time. Should the same order of weather be realised this year, the horticulturist, as heretofore, may expect that many of his crops will languish and be comparatively useless, unless artificial waterings be resorted to in order to counteract the bad effects of long-continued drought. Therefore we make no apology for calling attention to artificial watering, and directing the inexperienced to the fact that watering may be either a great evil or a great good, according as the operation is performed.

The error into which the amateur and inexperienced fall in this matter is that of constant mere surface-waterings instead of less frequent and thorough soakings. Water being the vehicle through which food is conveyed to plants from the soil, and in the atmosphere the preventive of excessive evaporation from the foliage, it follows that, to be attended with the desired effects, it must be administered in quantity sufficient to saturate the soil in which the roots are feeding much deeper down than any mere sprinkling can reach. And as far as artificial waterings can affect the state of the atmosphere, its power of preventing evaporation must be very limited. Not only do surface-sprinklings during seasons of heat and drought fail in securing the end desired, but the system is a positive evil, because, in the

Digitized by Google

case of stiff soils particularly, the surface becomes hardened and caked, thereby rendering it a better heat-conducting medium than when loose and porous, and as a consequence evaporation is increased also. Waterings, to be of any material benefit to plants, must be given in sufficient quantity to reach their roots, and the fewer the waterings rendered necessary to keep up a state of growth the better in all respects. There exist great differences of opinion as to the utility or benefit of watering at all in time of drought, and we are not at all at a loss to understand why this should be. Take for instance two cultivators; one applies mere paintings of water to the surface of the soil morning and evening, and leaves the surface to become hard and caked, and we are bound to believe that he finds his process do more harm than good. Another, who more correctly understands what he is about, gives regular drenchings, it may be only twice or thrice weekly, plies his Dutch hoe among his crop to keep the surface loose, and so prevent rapid evaporation; and it is not difficult to understand why he is in a position to assert the very contrary to his neighbour, because he finds his crop luxuriate in defiance of drought. Let us suppose a bed of Celery or any other moisture-loving crop to have been planted out three weeks ago, when it was perhaps moist and showery, and although it may have struck root into the bed of manure under it, a severe drought, we will suppose, sets in and continues; under such circumstances let it be treated to mere surface-sprinklings once or even twice in the twenty-four hours, and the soil between the plants to remain otherwise unheeded, it gradually gets caked, and cracks with the continued heat acting upon it. Let such treatment and such weather continue, and it will be strange indeed—especially if it be an early crop—if it does not by degrees get wiry and stunted, and eventually run to seed, and the crop and labour of watering are lost. On the other hand, let the amount of water supplied be sufficient not only to wet the surface soil, but to drench the manure down to the bottom of the trench, say two or three times weekly, applying it in the evening, and the following morning stir the surface of the bed, and spread a thin layer of dry soil from the sides or top of the ridges over the surface of the bed among the plants. Watered after this fashion, it will be found that Celery or any other moisture-loving crop grows strongly, crisp, and of a dark-green hue, and forms fine large heads fit for the most fastidious salad-eater. Nor does this latter process take much, if any, more labour than is involved in daily mere surface-sprinklings which do more harm than good. But why be so particular about keeping the surface loose? Just because a loose surface is a better nonconducter of heat than the open one, and the less heat absorbed the less moisture evaporates.

Digitized by Google

To some this may perhaps appear a trifling and unimportant difference in performing one of the most common operations of a garden in the summer months. It is not, however, so; for the difference we have pointed at involves the success or non-success of rearing vegetables fit for table in a year of severe drought. Besides surface-stirrings after effectual drenchings of water, we would strongly advise mulchings to the depth of a couple of inches with half-decayed stable-litter or leaves or short grass, as circumstances may direct. Such surface-coverings save much water-carrying, and keep the ground longer moist after watering than any other means.

In the case of sowing seeds in drills the same principle applies. After the drills are opened, give a good soaking in the bottom of the drills before the seeds are sown, and repeat the dose after they are covered in. Mere sprinklings to germinating seeds often destroy them altogether, and are worse than no watering at all.

It is usual in dry weather, in planting out flower-garden plants out of pots, to water them immediately after they are planted. So far well. But there are conditions which may prevent the water from doing the individual plant as much good as it would otherwise effect, even when a quite sufficient quantity of water has been applied. Take for instance plants that are what may be termed pot-bound in small pots. Let these be planted when in a dry and hardened condition with the ball full of air instead of water. It is turned into the bed or border without the ball being broken or the roots disentangled. The water applied passes into the general body of the soil, and leaves the dry ball nearly as dry as ever it was. It may indeed absorb moisture indirectly from the surrounding soil, but it sustains a check, and half the season passes before it makes a kindly start. Far better is it to thoroughly soak the balls before planting, and to partially disentangle the roots, and to press the soil firmly about it in planting. Then the water applied after planting penetrates the ball and the bed alike, and effects the purpose for which it has been applied.

We do not, however, wish to convey anything condemnatory of regularly sprinkling plants and the surface of the soil every evening. What we want to inculcate is, that the soil should be at the same time thoroughly wetted with less frequent soakings sufficient to reach the feeders, and the surface of the ground stirred or mulched to prevent evaporation. Surface-sprinklings are, for reasons already assigned, worse than useless. When both top and root are moistened, then the case is very different. It is not because we "pin our faith" to the weather-wise that we throw out these hints, but because they may be considered more or less applicable to the general run of seasons.

Digitized by Google

SOIL-TEXTURE.

WHEN we were an apprentice under a somewhat nervous master, we were taught to believe that a loose porous soil, as nearly as possible like a sponge or a bunch of dry sphagnum moss, was essential, absolutely, for Vines, Peaches, Pines, and most plants in a garden. This had been drummed into us so often, and so persistently, like a good many other lessons we have unlearned since, that we came to regard it as a fact beyond dispute.

Our master, we must say, practised what he preached. To set a foot on the soil anywhere in the garden without a board under it, was an unpardonable offence; and every man was furnished with a pair of boards, like moderate-sized planks, for stepping on when weeding, planting, or doing anything else. In addition to the boards, he was obliged to carry a fork for the purpose of erasing his "tracks;" and to be found without those appurtenances, even on the Cabbage quarter, would have entailed consequences little less serious than a trip to the nursery for the unlucky offender. As for walking across a Vine or Peach border, even upon the indispensable "steppers," it was an action only warranted by the gravest necessity. The biggest Groundsel or Sowthistle might "cheek" it with impunity to the last moment in such quarters, if only out of arm's length: probably, in the end, a trusted man, with two boards and a steel fork, would be delegated to apprehend the audacious "native," but no one thought of attempting the feat without an order from headquarters. We afterwards went to a situation in a noted fruit establishment, and were shocked to see the workmen running across the fruit-borders in the most irreverent manner imaginable. *We* knew better, and turned up our nose at the barbarians with the contempt of a "Celestial." Alas! we were laughed before we were reasoned out of our notions: certain allusions to, and comparisons between us and an elderly female, in words not particularly complimentary, did more, it must be confessed, to emancipate us from our prejudices than aught else we know of, unless it was the results of practice in the two places. We ceased, too, in time to be horrified at seeing Pine-Apple plants pulled about on a hand-cart and watered with a spout; for we were trained in the belief that Pine-culture was an awful mystery, and were accustomed to see all operations connected with their culture carried on in the most solemn manner. Six men and three hand-barrows were deemed necessary to move three plants (but the pots were "big uns"); the master led the cavalcade, the foreman brought up the rear, and all moved on in solemn state to the potting-shed. Only the highest authorities stood at the potting-bench. We stood afar off amongst the crocks, and shared

Digitized by Google

in the profound sensation which the appearance of a more than usually healthy root created, and every one breathed freely when the plant had been safely transferred to another pot. In those days we were almost afraid to be left alone in the society of a Pine plant; and our chief anxiety was, that we might possibly be called upon to grow Pines some day on our own responsibility.

This, however, is a digression; and to return to the subject of soils and their texture, we would remark that loose and porous borders are not in such repute at "the present time as it once was for stone-fruits at least." No doubt a tree will grow vigorously enough in an open fibry soil, but it is not by any means certain that such a medium is the best or most suitable for such fruits as the Peach, for instance. In the culture of the Peach, Plum, Pine-Apple, Strawberry, and suchlike fruits, in pots, our practice is quite opposite to that generally adopted in their culture in the border. In pots the soil is, as a rule, rammed about the roots till it is nearly as hard as a board. The most eminent fruit-growers recommend the Strawberry to be potted as firmly as the fingers and thumb can do it; and others recommend equally hard practice with the Pine-Apple and other things. It has been said that in such matters we should be guided by the character of the roots—that a plant with strong quill-like roots, like the Vine or Pine-Apple under some circumstances, should have a loose and open soil, and that plants like the Heath or Azalea, that naturally make a multitudinous lot of fibrous rootlets, should have a hard soil. This may be right, but every observant cultivator knows that roots alter greatly in character under different conditions. The Vine, for instance, if potted loosely in a rich soil, will simply make several coils of strong fleshy roots round the pot until they find their way out at the bottom. The Pine will do the same; in both cases the growth of the plants will be of a corresponding character. But if we pot either the Vine or the Pine hard, they will fill the pot full up to the surface of the ball with a host of fibrous roots. This we have proved many times. Obstruction would seem to have quite the same effect upon roots as cutting them. Mr W. Thomson of Clovenfords says that young Vines subjected to the cutting process, as practised by him, make roots like a box-tree more than anything else; which is quite true; and hard potting has exactly the same effect.

It has long been understood that when the roots are few and strong the branches will be the same, and fruit scarce, and that a bearing habit is only found in conjunction with a fibrous condition of the roots. Root-pruning might to a very great extent be dispensed with if fruit-tree borders were made firmer in texture than they are. We see no objection whatever to ramming the soil hard in making up a border, provided it is not wet at the time, but in that condition in which

Digitized by Google

gardeners prefer it for potting purposes. We know instances in which this has been done, and the results have been entirely satisfactory in every case. Were our object to get large trees in the shortest possible time, then a loose deep soil would be most suitable, allowing the branches unlimited scope at the same time. By-and-by the soil would get consolidated, and the trees would bear fruit; but this is not what we want. We have not room for large trees, and we desire quick returns; and therefore the energies of the trees must be compressed. Next to the advantages of grafting on precocious stocks, a firm soil for the roots is undoubtedly one of the greatest aids to success in the culture of stone-fruits at least; and it might be questioned if, in advocating a loose and porous soil for fruit-tree borders, we have not been committing a great mistake.

It would be interesting to hear what the experience of others is in this matter; probably some of your readers can say something on the subject. Two years ago, in making up a Vine-border, we had the soil, which was not all turf or of a very fibry texture, beaten as hard as it could be done with the back of a steel fork. This settled the soil so that there has been hardly any perceptible subsidence of the border since. The border is now permeated with roots, and the Vines have thriven, and the supernumeraries have borne remarkably well. This is our only experience with Vines planted out, but the borders of all the vineries are trodden on the surface without compunction by the men in their daily avocations. J. S.

NOTES ON HARDY CONIFERS.

CEDRUS (THE CEDARS).

IN this genus we have a group of three evergreen trees of surpassing beauty, very hardy, and so universally admired that they are to be found occupying the most prominent places in almost every pinetum or ornamental plantation throughout the country, each of the three forms having a distinct habit of growth and a general appearance peculiar to itself. Few trees are less fastidious in regard to soil: growing with equal luxuriance among the loams and clays of the *debris* of granite and trap, with those of the sandstone system, while in the lias and chalk of England they are most vigorous, and become magnificent specimens; they delight, however, in a rich soil, and a situation moderately damp, but well drained, as they are most impatient of water at the roots. The leaves resemble those of the Spruce Firs, being needle-shaped and short, never more than 2 inches long, but are disposed on the mature branches in tufts, varying in

Digitized by Google

number from five to about thirty, and scattered singly only on the young shoots.

Libani—*The Cedar of Lebanon.*—As its name implies, this well-known tree is indigenous to the mountains of Lebanon, where it is found distributed in considerable abundance over the whole range. It was first introduced into Britain nearly 200 years ago; and many of the original trees are to be met with in our parks and pleasure-grounds which have attained a large size, and are said to equal, if not surpass, in stately grandeur, any now to be found on their native mountains. It grows to heights of from 70 to 80 feet, with trunks varying from 30 to 40 feet in circumference near the ground; becoming, when old, a flat-headed tree, irregularly branched, and when standing alone, very broad in proportion to its height. The branches, which spread out horizontally from the stem, are so densely furnished with shoots and foliage as to suggest the idea of a series of solid shelves or stages. The leaves are in alternate tufts of about thirty in number, about 1 inch long, stiff and sharp-pointed, and of a grassy-green colour.

Apart from the interesting associations connected with this tree as the "goodly Cedar," so frequently alluded to in the emblems and metaphors of holy writ, the wood of which was so extensively employed in the construction of Solomon's Temple, it can scarcely be too highly valued for its decorative qualities; it is beyond question the finest of our park trees, worthy of being planted wherever a striking and picturesque group or single specimen is desirable, growing freely after being established in moist soils, and so hardy that it is never injured by our severest frosts.

Atlantica—*The Mount Atlas Cedar*—also called "Argentea," is indigenous to the highest mountains of Barbary, and most abundant on the great Atlas range, at elevations of from 5000 to 10,000 feet above the sea, and described as a noble and picturesque tree, rising to heights of from 70 to 100 feet. In general appearance it presents a combination of the characteristics of the other two forms, having the tall, straight, tapering habit of the Deodar on the one hand, with the stiff horizontal branches of the Cedar of Lebanon on the other.

Since its introduction into this country, about the year 1845, and particularly during the last dozen of years, it has been extensively planted as an ornamental tree, and has proved itself one of the hardiest and most distinct of our recently-introduced Conifers, its shining silvery foliage and dense conical habit of growth contrasting pleasingly with most other trees of the Fir or Pine tribe.

Though as yet for the most part planted only for ornament, this species has many qualities to recommend it to the attention of those

Digitized by Google

interested in timber-trees; its perfect hardiness, and ability to stand uninjured in exposed situations, the rapidity of its growth—in favourable circumstances rivalling that of the Larch—and the fact that its wood is equal in value to any of the Pines, must soon secure its being extensively planted as a profitable forest tree.

Deodara—*The Deodar or Indian Cedar.*—Found in vast forests in the ravines of the Northern Himalayas, at elevations of from 5000 to 12,000 feet above the sea, and rising to heights of from 150 to 200 feet, with trunks of from 20 to 30 feet in circumference. Since its introduction in 1822, this singularly beautiful tree has been most extensively distributed over every district in Britain, proving perfectly hardy, and equal to our severest winters, if planted in tolerably rich, well-drained land, and sheltered from the full force of violent winds.

If the Cedar of Lebanon may with truth be said to be the most majestic and picturesque of park-trees, the Deodar may with equal truth be classed as at least one of the most graceful. Its symmetrical conical habit, densely clothed to the ground with pendulous branches, along with its beautiful glaucous colour, never fails to please, and to secure its admission into the most select collections. From its peculiarly handsome habit of growth, it is most admirably adapted for planting singly on lawns, and is unsurpassed as an avenue-tree if allowed plenty of space for the development of its branches. It is one of the few Conifers that may be freely pruned if the operation is performed in early spring before the growth commences.

The wood of this tree is considered superior in quality to that of either Libani or Atlantica, being much more resinous, closer grained, and more durable; and so much valued by the Hindoos that they use it in the construction of their temples, as well as for all purposes where durability and strength is an object. By a striking coincidence they call it "Devadara," the Tree of God, the term applied by the Psalmist in the 80th Psalm to the Cedar of Lebanon, the "goodly Cedars," being literally "Cedars of God;" a fact which, along with the superiority of its timber, has led some writers to suppose that it was the Deodar that was used as beams in the Temple at Jerusalem. This, it need scarcely be said, is extremely improbable, seeing that the tree has never been discovered in any locality nearer than the Himalayas.

HUGH FRASER.

NEW MODE OF HEATING BY HOT-WATER PIPES.

VARIOUS have been the plans adopted for heating horticultural structures, from the time-honoured brick flue down to the well-finished cast-iron pipes, with ingenious boilers—cruciforms, saddles, cannons, &c., all doing their work more or

Digitized by Google

less effectively, as the case may be; but the very nature of the heating agent hitherto used—viz., coal—cannot secure that uniform hairbreadth exactitude which would be so very gratifying to the feelings of that "unfortunate being" so tenderly alluded to in the lucid contribution on heating in January number of the 'Gardener.' The best-constructed furnaces are influenced by the state of the weather and the quality of coal used. Some kinds of coal burn freely when unchecked by a damper; but apply the damper, and the effect upon the fire is (to use a Scotticism), it "smoors." Of the atmospheric influences that derange the regular action of coal furnaces, the mention of two will suffice—high winds and a close calm. The damper being set to counteract the effect of a high wind, when the fires are "made up" at night, and a calm ensues, the consequence is that the coal "cakes over," and a diminished heat is the result. On the other hand, the damper is set for calm. The "unfortunate being" is away from the scene of his labours, happily enfolded in the arms of "Morpheus," utterly oblivious of all sublunary misfortunes. Meanwhile the wind has "blawn as 'twad blawn its last," stirring amongst other things the fire which has been so carefully "happed," in the sure hope of its lasting a certain time. Vain hope; the gale rages, infusing its oxygenic breath amongst the coals, raising the heat beyond the orthodox standard. The reaction soon follows, leaving the house too cold. Now, when our respectable friend the "stoker" looks in at his furnace-door in the morning, lo! what meets his anxious glance? a solitary chunk of red coal, an oasis in a desert of ashes. He hastily thrusts in his "clawt," raises a cloud, in which he takes his compulsory dust-bath, serves slightly with coal, runs to the next stoke-pit, where the process is repeated; and happy is he if by any chance the houses can be run up to *regulation* rates before they meet the disapproval of his lynx-eyed superior, when a familiar nod may be his reward instead of an ominous scowl. The ills caused to vegetation by sudden transitions from heat to cold, and *vice versâ*, are patent to all gardeners. I have stoked a good variety of horticultural boilers, noting their merits and demerits, and have found them all more or less imperfect in supplying a regular heat. Boilers heated with coal-gas have also come under my notice, and I have experimented a little with them too. I have found gas deficient in transmitting a uniform rate of heat; albeit the defect is on a smaller scale than what is found in working a coal-heated boiler. There will, however, be but little chance of gas taking a high rank as a hothouse-heating power. The expense entailed by its heavy consumpt, pipe-laying, and its concomitant paraphernalia, will keep gas in the position it has long held—viz., a first-rate illuminator, but an indifferent heater of toy boilers. I have recently invented a boiler and heating apparatus more perfect. The heating agent used is mineral oil. This boiler requires no stokehole, no building-in, no smoke-stalk, as the apparatus consumes its own smoke,—a desirable quality in cases where glass structures are close to or attached to mansion-houses. The boiler has a perfect command of heat, could be readily adapted to heat a cathedral or the meanest cucumber-frame, and does its work with the *regularity* of a well-timed clock. "The Squire's Gardener," in a racy article on boilers, in April number of the 'Gardener,' 1868, expresses this belief: "We are of opinion that a still more improved boiler is yet to be made, to combine the power of the tubular with the economy of the horizontal—that is to say, a boiler which will exhaust the heat from the fuel, and that shall be simple and cheap." Would "The Squire's Gardener" "be surprised to learn" that such a boiler has been made, not only having the power of the tubular, but being more economical than any coal-heated boiler whatever, whether as regards the facility with which it can be set

Digitized by Google

in any position without the aid of mason or bricklayer; or its extreme simplicity, and the ease with which it is *managed*; its small consumpt of fuel, coupled with the total saving of labour in the shape of shovelling in coals and shooting out ashes, besides dancing attendance by day and night, Sunday and Saturday, which all coal-heated boilers necessarily involve? All those attentions are unnecessary in the case of this boiler. The only essential adjunct is (in Yankee phrase) to "strike ile" and set the thing a-blazing, which, when done, the flow of water is almost simultaneous with the *application* of the flame. It can then be made to transmit the required temperature to peach-house or pinery for any length of time without varying a single degree. About twenty years ago, J. Young, Esq., secured a patent for the manufacture of mineral oils. The first manufactory was established at Bathgate at that time. Since then the distillation of the Boghead shale has become famous, finding its way to most parts of the world. The immense and rapid *develop* of the oil trade is one of the marvels of this marvellous age. The production of oil will in all probability be co-existent with coal. From coal and shale are educed some of the most exquisite and curious products of chemical skill and industry. From them we obtain aniline colours of varied hue, mauve, magenta, &c. The hydrocarbon oils give us a very valuable liquid gas, of prime importance in country districts and amongst the poorer portions of our populous towns. The pure and steady light obtained by the combustion of paraffin oil makes it the cheapest source of artificial light hitherto produced. The lubricating oils have also attained a high rank, being almost exclusively used for all kinds of machinery. Several attempts have been made to supply the necessary amount of caloric to marine and other steam-generating boilers, all of which laudable efforts have proved abortive; but I am sanguine of yet seeing that puzzling problem solved successfully, being of opinion that at no distant date oil will form, if not an absolutely necessary, yet one of our principal fuels. With the necessary permit from the Editor, in some future number of the 'Gardener' I will describe the oil-heated boiler.—[Pray do.—ED.]

JAMES CAMPBELL.

ROSEMOUNT HOUSE, BATHGATE.

FIG-CULTURE.

SOME short time ago a discussion arose in the pages of a contemporary anent pruning *versus* pinching Fig-trees, some advocating one system, some the other, while both systems appeared to give satisfaction to their respective adherents. Though late, it may not perhaps be altogether out of place to record a little of my experience on the subject.

A few years ago, in the month of November, I went to take charge of a garden establishment in the west of Scotland, and found there a large Fig-tree which covered about 90 feet run of a 12-feet wall. For years every shoot had been tied in, in every conceivable position, till they resembled bundles of faggots more than anything else; the consequence was that for many years very little fruit indeed had been gathered from the tree. I at once cut away all the faggots, reserving as many of the best shoots as would cover the wall thinly. In spring the tree

Digitized by Google

began to push vigorously from both old and young wood: when the shoots had expanded the fourth leaf, I pinched out the terminal bud, and kept rubbing off all weak worthless shoots as they appeared. Fruit soon began to show plentifully, every shoot almost having its quota of three or more embryo figlets, which continued to swell, and ripened off beautifully in August and September. I did not take note of the quantity gathered, but they must have amounted to some thousands. I persevered in the pinching throughout the season, and when late autumn overtook us, the tree was literally covered with young shoots bearing fruit from the size of a hazel-nut to that of a pea, and even smaller, and which, I have no doubt, would ripen early next season, *excepting perhaps some of the larger ones*, if afforded a little protection through winter. As I left the place in November, I had no means of ascertaining whether such was the case or not.

Another case in point has come under my observation during the present and latter part of the past season. In the place I am now in charge of, and on which charge I entered at midsummer 1871, I found several Fig-trees, some under glass, some outside, in a similar condition as regards fruit to the one above mentioned; but in this case the branches, instead of being tied up in bundles, had all been nailed in to the wall, the branches of one tree so crossed and interlaced with those of the next tree that one could hardly get the tip of one's finger between them. Of course, under these conditions the wood could not ripen, as neither light nor air could get at it. As in the former case, I cut and hacked mercilessly till I left just as much as would cover the wall, the shoots laid in at about 6 inches apart, and kept persistently pinching the young shoots at the fourth leaf. Towards autumn young fruit began to appear on the trees under glass, many of which are now ripe and ripening, while others range from the size of a pigeon's egg downwards. No fire-heat was ever applied, even in winter. The outside trees, excepting on some of the topmost shoots, did not show fruit before winter set in, but the wood got nicely ripened; I let it all remain sticking out at right angles to the wall, and it still remains so. I thought I would defer the thinning operation until I would see on which shoots fruit would show. The greater part of the shoots are now showing fruit, some the size of a Pea, some larger, so that I must perforce sacrifice a great many.

I shall continue to pinch and twist off the secondary growths at their starting-point, as I am convinced this is the most reliable system of Fig-culture. I find the medium-sized shoots show fruit more freely than the weak or over-strong ones. J. G.

Digitized by Google

A PLEA FOR SPRING FLOWERS.

WE are occasionally in our local papers, as also in horticultural periodicals, treated to a detailed description of flower-gardens when they are gay with Geraniums, Calceolarias, &c., in summer and autumn; and in winter we have enumerated and described the various plants in flower in their stoves, which are only known to a few practicals, and others privileged to visit such places; but seldom is much said about the tiny Alpine or the hardy herbaceous plants, which with little trouble can be cultivated in the garden of the cottager as well as that of the peer; and many of your readers will silently thank Mr Sutherland for his remarks in the pages of the 'Gardener' on hardy herbaceous plants. I hope his book on the same subject, as also Mr Robinson's on Alpine Flowers for English Gardens, will have their influence in reviving an interest in their culture. At present they are almost banished from private gardens; and it is mostly to the amateur cultivator or the Botanic Garden that we have to look for some of our old favourites. After the late snowstorm I resolved to pay a visit to the garden of Wm. B. Boyd, Esq., at Ormiston, about 5 miles from Kelso, in Roxburghshire, to see his collection of spring-flowering plants; and to see them dotted over his borders, amongst other hardy and later-flowering kinds, gives such a floral display as is seldom seen at this season of the year, and which immediately after a snowstorm is a pleasant remembrancer of spring, well calculated to exhilarate the spirits and elevate the mind. When I last visited Mr Boyd's garden, a few years ago, his principal borders up the centre of his garden were effectively planted in the ribbon style, with five rows on each side of the walk, requiring over 2000 plants, and of course bare in winter. Now, in the same space, instead of five different kinds of plants, he has them planted with 1000 species of herbaceous and Alpine plants, which make them, with his other borders, highly interesting during the greater part of the year. There are also tastefully-constructed rockeries, of considerable extent, neatly arranged, one of which seems in the style of the new rockery in the Edinburgh Botanic Garden, which is not so well known as it ought to be; for, besides containing an extensive and interesting collection of rare plants, it is of itself a work of art well worth seeing by any one interested in such things, when visiting Edinburgh.

My object in sending the following list of spring flowering-plants is to show what can be done in a comparatively small space without the aid of glass, and to encourage amongst amateurs with small gardens the cultivation of such plants. The interest attached to the cultivation of hardy herbaceous plants is one which the amateur will find most engrossing; and it will grow upon him the longer the study is

Digitized by Google

continued, every plant having a separate history, such as where it was found, when it was introduced, and the soil and situation best suited to its growth. In larger places it is a good plan to have a piece of ground in an out-of-the-way place, where a few roots or bulbs of single or double Snowdrops, dog-toothed Violets, purple and white, the dwarf Daffodil, the family of Primula, &c., in fact anything that rabbits don't destroy, may be grown. They soon increase, and every year a quantity can be lifted, and planted around the edges of shrubberies and walks, through the woods, &c.—in fact everywhere—in an informal manner. They soon establish themselves, and give a place a cheerful appearance. The above plan has been practised here for many years; and to see the Snowdrop alone, in such quantities, in the dull winter months, is a great relief.

All the plants in the enclosed list were in flower at Ormiston during the last week of March and first week of April 1872.

Anemone blanda.
" angulosa.
" coronaria.
" appenina.
Auricula nigra plena.
Arabis alpina.
" " variegata.
" præcox.
" " folis var.
" lucida.
Androsace carnea.
Andromeda floribunda.
Aubrietia purpurea.
" " variegata.
" grandiflora.
Bellis perennis aucubæfolia.
" perennis, white.
" " red.
" " white-quilled.
Bulbocodium vernum.
" " fol. striatum.
Cyclamen ibericum.
" " album.
" coum.
Cardemine pratensis, fl. pl.
" trifoliata.
Cheiranthus cheiri.
" præcox aurea.
Corydalis nobilis.
" bulbosa.
Doodia epipacris.
Draba aizoides.
" aizoon.
Doronicum caucasicum.
Euphorbia pilosa.
Eranthis hyemalis.
Erythronium dens canis.
" " " abum.
Fritillaria pyreniaca.
Fritillaria præcox.
" meleagris.
" imperialis.
" " lutea.
Galanthus nivalis, fl. pl.
" plicatus.
Gentiana acaulis.
Gagea lutea.
Helleborus purpurescens.
" atrorubens.
" colchicus.
" grandiflorus.
" niger.
" olympicus.
" orientalis formosus.
" viridis.
Hepatica, white, blue, and red.
" red and blue, double.
Iris reticulata.
Iberis saxatilis.
Lythospermum prostratum.
Muscari botryoides.
" " alba.
" " pallida.
" racemosum.
Myosotis dissitiflora.
Narcissus pseudo narcissus.
" " fl. pl.
" moschatus.
" " fl. pl.
" maximus.
" minor.
" minimus.
" tortuosus.
" jonquilla.
Orobus vernus.
Polygala chamœbuxus.
Pulmonaria officinalis.
" siberica.

Digitized by Google

Pulmonaria virginica.
Primula denticulata.
" marginata.
" niveus.
" cortusoides.
" " amœna.
" veris.
" acaulis.
" " alba.
" " " fl. pl.
" " lilacina.
" " " fl. pl.
" " purpurea.
" " rosea, fl. pl.
" " sulphurea, fl. pl.
" elatior, fl. pl.
" auricula, many vars.
Ranunculus ficaria, fl. pl.
" " alba.
" montanus.
" amplexicaulis.
Sanguinaria canadensis.
Saxifraga granulata.
" caryophylla.
" aretioides, flowered in 1871, for first time in Britain.
" oppositifolia.
" " alba.
Scilla siberica.
Scilla præcox.
" amœna.
" bifolia.
" " alba.
" " carnea.
" " major.
Sisyrinchium grandiflorum.
" " album.
Soldanella alpina.
" montana.
Tulipa sylvestris.
Viola odorata superba.
" " the Czar.
" " Queen of Violets.
" " superba alba.
" " Devoniensis.
" " Neapolitana.
" biflora.
Alyssum saxatile.
" " fol var.
Bryanthus erectus, hybrid between Rhododendron chamæcistus and Kalmia glauca.
Daphne mezereon.
Jasminium nudiflorum.
Vinca minor.
Ribes uvacrispa grossularia, or Fuchsia-flowering Gooseberry.

W. F.

HINTS FOR AMATEURS.—JUNE.

THERE is little change in the fruit-garden work from last month's "Hints," but a more vigorous effort must be made to get the work done at the right time, so much will now require attention in other departments. Destroying vermin with syringe, stopping vigorous shoots, rubbing off those not required, keeping an eye to uniformity, and avoiding crowding, are among the most important operations. We find great difference in flavour and colour of fruits when they have been well exposed to sun and air. Keep all suckers off before they weaken the tree. Rasps may be reduced to the number which are to supply canes for next year. Fruit-trees of all kinds which are weakly in growth, and bearing freely, may be assisted by good soakings of manure-water. Strawberry runners may be placed in small pots filled with soil, or on pieces of turf; good vigorous plants are thus secured for planting as well as for forcing. All fruits should be netted from birds as far as can be done: a little delay is dangerous.

Now is a good time to cut box-edgings: for flower-beds they are generally flat, which gives substance to the design, and the space covered with green is pleasing to the eye. In vegetable gardens, box

Digitized by Google

edging is better when cut like the letter A. Walks will now require much labour to keep them clean: salting is often attended with much mischief. If it is made into a liquid strong enough to float an egg, the gravel can then be sprinkled with a watering-pot and rose. Fresh clean walks are a great ornament to a pleasure-garden, but they involve much labour.

The "bedding out" will now be in most places finished, except in low-lying damp places, where frost is scarcely ever absent: finishing with watering-pot and hoe is a matter not to be overlooked. Let a good soaking be given to the beds, not merely at the roots of the plants, but all over; and when the soil is dry enough, it should be stirred all over with the hoe, which will keep the moisture in. When ground has been well trenched or otherwise prepared, the plants will not readily suffer from drought. Look after slugs among annuals, and thin the plants out before they become matted, which would speedily bring their beauty to a close. Propagation of Pinks, Carnations, Cloves, Picotees, Pansies, &c., should have attention as soon as the necessary pipings and cuttings can be taken off. They do well behind a wall, hedge, or other shade from sun. Light sandy soil answers best, and a few handlights will bring the rooting process more speedily to a close. The young tops of Pinks, &c., taken off an inch or two long, the bottom two leaves pulled off, and the piping cut over at a joint, is all that is required; then the cuttings may be put in thickly and neatly, well watered, and little else is necessary. Lift bulbous roots when the foliage dies down, keep them in sand till they dry off, but it should not be hastened. Where the bulbs are to remain in the ground, a little manure may be forked carefully among them, and the space planted with Stocks, Asters, or any other flowering-plants. Place Auriculas and Polyanthus (which are in pots) behind a wall or other place; keep them clean and water them well. Stake all Pinks, Carnations, Herbaceous plants, and all others which require it, before winds have full power over them. Except where seed is wanted, decayed flowers should be cleanly picked off. Water Ranunculus-beds thoroughly—drought soon brings their beauty to an end. Chrysanthemums should now be kept growing without any check. They should be full in the sun, kept well apart, abundantly watered, regularly topped, and the roots prevented from growing through the pots. Those turned out of pots to be lifted as large specimens in autumn, must not be left to themselves, but have plenty of water, and a little mulching placed neatly over the balls. Stopping after this month is generally too late for Scotland and cold districts, but in the south of England some continue the practice for a number of weeks later. Balsams, Cockscombs, Fuchsias, &c., for late flower-

Digitized by Google

ing, should have plenty of pot-room, and not be checked in any way at their roots. Shade plants which are in flower from strong sun, so that their beauty may be lengthened. Plant out Cinerarias and Calceolarias (Herbaceous), &c., so that they may make young growths, to be taken off for fresh stock. The young side-shoots should be taken and potted neatly into small pots of sandy soil, kept close and free from insects; when they root they can be shifted and grown on. Seedlings are more largely grown, and may be sown now, keeping them cool and rather shady after they are up and growing. Checking them in a young stage is fatal to success. Cut down "stage" Pelargoniums which are done flowering; let them dry for a few days, then sprinkle them overhead to get them to break; when they are half an inch long, shake them out of their pots, and pot into smaller ones and grow on, shifting as may be necessary till the flowering-pots are again wanted. Drain well for all plants, giving them clean pots. When flowers become plentiful out of doors, structures may be washed, repaired, and painted: better to have some nice well-grown specimens in flowering-houses at this season, than masses of insignificant plants, which are not so interesting as plants in the open borders. Cleanliness of both foliage, pots, and their surfaces, is of great importance when healthy vigorous growth is required. Turn specimens round to the sun. Keep Heaths and Epacris from getting water-logged. Keep worms out of their pots. Azaleas should be carefully looked after, to see that thrips are not infesting them; scale is always ready to prey on Camellias and Oranges. The sponge and syringe are essential to their welfare. Windows may now be made very gay; all common bedding-plants, Mignonette, Stocks, Rhodanthes, Nemophilas, and many other things of free growth, do well for this purpose; if they have good soil and abundance of water when required, they will grow well. Keep dust and insects off the foliage. Sprinkle overhead as well as at the roots after hot dry days. Water which has stood in the sun free from weeds and mud is best.

M. T.

DIPLADENIAS AND ALLAMANDAS.

EVERY ONE who has a plant-stove should cultivate these splendid plants, which, when really well grown, are scarcely to be surpassed in exquisite beauty by any other ordinary stove-plants. Their great Convolvulus-like flowers, when produced in profusion amongst the fresh, vigorous, green leaves, are nearly everything that is perfect in form, as also in their rich but at the same time delicate colouring. All the species of both genera may be propagated freely from cuttings

Digitized by Google

as soon as they commence making their fresh growth in the spring. The cuttings should be inserted in a well-drained cutting-pot, in a mixture of any light soil to which a large proportion of sand has been added. Give them a good watering, using tepid water and a fine-rosed watering-pot, and then plunge the pot in a tan-bed, covering the whole with a bell-glass—that is, supposing you have not a propagating-case at your command. Keep them carefully shaded from bright sunshine, and add moisture from time to time in order to prevent their suffering from evaporation, and they will be well rooted in a week or two. Some cultivators prefer growing the several species on their own roots, while others work the more delicate species, or rather varieties, on the strong-growing and more robust-habited kinds. Dipladenia splendens is a free-rooting species, and one that makes a fine healthy stock for Tuke's celebrated hybrid, D. amabilis, and the even more beautiful and delicate D. amœna. I have not as yet had an opportunity of testing the constitutional vigour of the new D. insignis, a splendid variety raised by J. Waterhouse, Esq., at his princely establishment, Well Head, near Halifax; still I have not the slightest doubt but that, like its parent, it will grow vigorously, worked on the before-mentioned stock. For Allamandas such as A. nobilis, A. Schottii, A. Hendersonii, and A. grandiflora, the robust-growing A. neriifolia makes a fine stock, as also does A. aubletia, another very free-rooting species, and one possessing a fine robust constitution. Grafting is as yet in its infancy, so far as stove and greenhouse plants are concerned. We are just beginning to appreciate the value of selection as applied to stocks for Vines and Conifers, but there exists no doubt in my own mind but that the process of grafting is well worthy of far more extended application than it at present enjoys—not only in the case of stove and greenhouse plants, but also as applied to Cucumbers for winter fruiting, and some of the more richly-flavoured Melons, which, having a weak constitution, are very liable to feel the effects of damp, and rot off just about the soil. To return to my subject, however, we will glance at the soil in which these plants luxuriate. In the first place, it is essential to use none but the cleanest of pots, seeing that they are thoroughly well drained, for these plants speedily feel the debilitating effects of a sour and stagnant compost. If possible, procure some fresh turfy loam; the more fibrous it is the better, the best being that taken from a dry hilly pasture, where there are rocks an inch or two below the surface. To this add one third of thoroughly-decomposed leaf-soil, a few shovelfuls of peat, and add a sufficient quantity of coarse well-washed river-sand to keep it moderately open. Pot the plants in this compost, and keep them in a warm and moist atmosphere until thoroughly established, when they may be fully

Digitized by Google

exposed to the light. In order to induce these plants to produce an abundance of flowers, they should be carefully trained close to the glass, using thick string or twine, which admits of their being readily removed without injury when sufficiently advanced for placing on globe trellises. I have never found either Dipladenias or Allamandas scorched by the sun, unless they are under bad glass, or are suffering for want of water. When the pots become filled with roots—a circumstance very essential to their free flowering—they must be carefully looked after, for an hour's neglect at that period will often spoil all the pains previously taken with the plants. Assist them from time to time with a little manure-water, which may be made as follows: obtain a quantity of fresh cow-dung, and throw it into a tub of soft water, adding a little guano. Stir it up occasionally, and add one handful or two of guano as required, but let it settle down and become tolerably clear before use. I have found this mixture invaluable for most stove and greenhouse plants, including Geraniums, Fuchsias, Caladiums, Gardenias, and Gloxinias. I find that both Allamandas and Dipladenias require an abundant supply of water when in full growth. They should be grown in a warm stove, and syringed freely several times during the day in order to encourage the production of fine healthy leaves, as well as to prevent the appearance of mealy-bug, red-spider, or thrip. It is very seldom that any insect pests attack Allamandas, though Dipladenias are very liable to the attacks of thrip and mealy-bug. A moist genial atmosphere, with a free use of the syringe and an occasional dose of Fowler's Insecticide, are the best preventives. F. W. B.

NOTES ON SUCCULENT PLANTS SUITABLE FOR OUTDOOR DECORATION.

(*Continued from page* 137.)

WHEREVER anything like a collection of succulent plants is aspired to, the Mesembryanthemums should occupy a very conspicuous position, and form an important part of it. Their comparative hardiness, easy propagation, rapid growth, and the exceedingly pretty flowers of many of the species, combined with the low grotesque forms of some and the stately aspect of others, make them interesting features of decoration for rockworks, carpets, or edgings in the flower-garden. And to our mind they are the only genus of succulents which are admissible to combine with other flowering-plants as edgings, &c. *M. stellatum* is one of the finest for carpeting, with accumulated tufts of small oblongish leaves, dotted with little frosted-like silvery specks, and each terminating in a cluster of light hairs. *M. bulbosum* is an-

Digitized by Google

other fine prostrate kind, with many shoots densely covered with pretty hairs and small fat round leaves. *M. linguæforme* and *M. grandiflorum* are both large, thick, long, green-leaved species, which have been much used for edgings for succulent and foliage beds in the parks about London. But neither are so elegant for edgings as *M. tigrinum* and *M. lupinum*, which two we have selected as being by far the finest from amid upwards of 200 species and varieties. The difference between the latter two is scarcely perceptible, each being of dwarf habit, with slightly-concaved thick fleshy green leaves, from 1 to 2 inches in length, beautifully margined with small reflexing teeth, the whole impressed with little white dots. *M. uniforme* has small protuberant columnar stems about 2 inches high, bearing no leaves, and of a beautiful pellucid tone, each slightly furrowed on the apex, and stamped with quite transparent little spots. *M. cordifolium variegatum* is one of the most useful plants we possess, and differs in appearance from all its other congeners, with masses of soft yellowish heart-shaped leaves 1 inch in diameter, which contrast well with any brilliant colour, especially with its own bright magenta flowers peeping from amid its creamy foliage. For edgings or masses it surpasses the Pyrethrum Golden Feather, and merits a "first place" in every flower-garden. When used for edges the shoots are generally inclined to straggle from their place; and it is necessary to peg them into their proper places, rather than resort to pinching. Apart from all such, some of the tall-growing species, such as *M. curviflorum*, *M. hamatum*, *M. foliosum*, *M. parviflorum*, *M. rubicaule*, *M. virens*, and many others, which grow to a height of 2 and 3 feet, and produce an abundance of various-coloured flowers, make very pretty greenhouse plants when trained after the style of the Ericas. These are propagated by cuttings, and from seed. Cuttings should be taken off in autumn along with other bedding-plants, and inserted into 48-sized pots well drained, the remainder filled with a compost of loam, leaf-mould, and silver sand: thirty cuttings of the small kinds winter well in a 48 pot. The large ones should be put singly into small thumb-pots, and kept over winter in a cold dry frame or greenhouse. In spring they should be shaken from their store-pots and potted singly into 60's, when they produce fine plants for bedding in May. *M. cordifolium variegatum* and many others seed freely throughout the summer. The seed should be carefully gathered when ripe in autumn, and sown in pots or pans in an open mixture, and put into any close place with a temperature of 60°, where it soon germinates, and makes good plants for bedding with the others. When permanently cultivated in pots, pieces of rock or round bits of sandstone are very beneficial to mix with the soil in potting. In hot weather they are liable to become infested with

Digitized by Google

red-spider, when liberal syringings should be given as a good preventive for such.

Alternantheras make such congruous associates for carpeting in connection with our former enumerated plants, that we cannot refrain diverging from our succulent course to say a few words in their favour. These beautiful little foliage plants are not so tender as many suppose them to be, as an early frost last autumn cut up our Coleus, Iresines, &c., and left the Alternantheras untouched till late in the season. And Mr Sorley assures us they do admirably with him as far north as Mayfield, in Stirlingshire. They also harmonise well when mingling with such light foliage plants as Santolina incana, Cerastium tomentosum, Coprosma Baueriana variegata, Golden Feather, &c. *Alternanthera amœna* is a very fine magenta-coloured one, dwarf in growth, and the tenderest, only succeeding in warm situations. *A. amabilis* and *A. magnifica* are the two finest for general bedding purposes, being of free growth and robust habit, which render them well adapted for cold northern districts; and though wanting the brilliant appearance of the first named, their deep orange-coloured leaves, beautifully margined with bright red, make them equally effective when formed into masses. *A. paronychioides* is also a free grower, with narrow bronzy-coloured leaves tipped with dim scarlet. To insure perfect effect with these, plants should be full size, or nearly so, before planting out. To attain this, strong cuttings should be taken off early in autumn, pricked into pots or boxes, and kept in a warm propagating house or pit until rooted, when they should be removed into any place where a temperature of 55° can be maintained, until the middle of January, when they should be potted singly into small pots in an equal mixture of loam, peat or leaf mould, and sand, and kept in a temperature of 60° till they have made strong plants, to be hardened off in a cold frame, and planted out in June.

The following is a useful selection of Mesembryanthemums:—

For Edgings.	*For Carpeting.*
Albidum.	Crassifolium.
Agninum.	Caulescens.
Brifidum.	Clavellatum.
Cultratum.	Falcatum.
Depressum.	Filicaule.
Folinum.	Floribundum.
Hybridum.	Falciforme.
Lucidum.	Geminatum.
Longum.	Lineolatum.
Robustum.	Marinum.
Salenii.	Productum.
Scapigerum.	Roseum.

J. M.

(To be continued.)

Digitized by Google

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

(*Continued from p. 234.*)

LIBONIA FLORIBUNDA.

This is a most useful and very effective plant in a small state for winter decoration; it also stands a long time in bloom; and where there is a large demand a quantity should be grown. It is of a neat dwarf-growing habit, with light-green foliage. The flowers are tube-shaped; colour yellow and red. To have nice flowering-plants in December and January, cuttings should be struck in February and March. As soon as rooted, pot them off into thumb-pots, using rich free soil; let them be placed in a moist, growing temperature. They should not get any check, and should always be shifted into a larger pot whenever required until 6 and 8 inch pots are arrived at; in them, with liberal treatment, they will make fine bushes by the autumn. All through the season let them be well attended to with water, and in the evenings after a bright day let them have a gentle dewing overhead with the syringe. Let all the strongest shoots be pinched if any appear to take the lead, so that the plants may be kept dwarf and compact. If a frame can be devoted to them about the month of June, they will do well in it for the summer months; keeping the lights a little close for a short time at first, gradually giving more air until they can stand in fine weather without the lights, but always keeping them close at hand, so that if heavy rains occur they can be put on. Let them at no time suffer for the want of water, and continue the use of the syringe on bright days. They will require nothing more until about the middle of September; if any of the shoots appear to be growing stronger than the others, nip the centre out of them. Withhold the syringing as the middle of September arrives; induce them by all means to get the wood well matured. At this time a few of the most forward may be taken to a light warm house close to the glass, where they will come nicely into bloom about the end of the year. If those left in the frame cannot be got into a house near the glass by the beginning of October, the lights should be put on and kept shut closely up at night. They thrive well in equal parts fibry loam and peat, a little well-decayed dung from an old Mushroom-bed, with a good sprinkling of silver-sand.

PRIMULA CORTUSOIDES AMŒNA.

Although a hardy plant, we find this most useful for spring decoration, and it stands well when cut. When intended to bloom in pots, let them be induced to get ripened, and go to rest as early in the

Digitized by Google

autumn as possible. After they have gone to rest, set them in a cold frame, giving water so that the soil is kept moist. When they begin to show the least signs of growth, let them be placed close to the glass in a cool airy house; if kept close and warm, the foliage gets drawn, and the flowers have not such a good colour, and sooner fade. A little weak manure-water is a great help after the flower-stalks appear. After they have flowered, if more plants are required, divide them, putting them into 3-inch pots, using equal parts of mellow loam, peat, a little old manure from a Mushroom-bed sifted through a half-inch sieve, with a sprinkling of sand. Let the pots be well drained, and when potted put them where they can be kept close for a few days, after which they will do best if plunged out of doors in some quiet corner, where they are not neglected with water throughout the summer. When they have got well established with roots in the 3-inch pots, a few of the strongest may be put into eights, the others into sixes; in these they will make fine plants for flowering the following spring. The flowers are of a rich rosy purple, abundantly produced well above the foliage: there is also a white and a lilac variety, both deserving cultivation in pots, or where there is a large demand for cut blooms; all can be grown well in a cold frame, and had earlier than those in the open borders. P. japonica is another which is making a great stir at present, and should be in every collection of spring plants in pots. One small plant here has one stalk, with the third tier of whorls, which are expanding well, although there are twenty-five blooms; and there is another stem showing: the flowers are rich magenta. As a single specimen, when well grown and bloomed, it will not disgrace the exhibition-table, and is very effective among other spring blooming plants. To all appearance as yet, the treatment of the Cineraria suits it very well. It does well with liberal treatment in the way of rich composts and manure-water when in flower, but do not at any time attempt to force it into flower by putting it into heat, as this will spoil much of its beauty, and it will not be so fine in any way as when left to expand in a house where only frost is kept out.

A. H.—T.

DWARF PALMS.

PALMS are for the most part inhabitants of the tropical or sub-tropical portions of the globe, and ere long are destined to occupy even a more prominent position in any garden and decorative arrangements than is at the present time accorded to them. They are unsurpassed by any other class of plants for graceful beauty of outline, not even excepting

Digitized by Google

the most delicate Ferns; while for the decoration of the dinner-table or the embellishment of apartments they stand unrivalled. For the last-named purposes the smaller growing kinds are best adapted, but many of the larger ones may be used when in a young state. One decided advantage possessed by Palms is their persistent character; they are always fit for use any day in the year when required, and they require but little trouble to keep them in a healthy condition. Perhaps the great drawback to their general cultivation may be owing to the restricted means of propagation, for although these plants are very beautiful in their young state, they do not produce perfect fruit (or seed) until they have acquired a considerable age; and it is by seed alone that the majority of them have to be propagated in this country. Some of the French or Belgian nurserymen import large quantities of fruit, and raise annually a considerable number of plants, many of which they dispose of in the seed-pan at a proportionately low rate; and this plan might be adopted with advantage by some of our own nurserymen, and would ultimately lead to the more general cultivation of a class of plants worthy of every attention on the part of the gardener and plant-grower.

There is nothing particularly difficult in getting the fruit of Palms to germinate, providing that it is in good condition when received; and we would advise those who may have the advantage of foreign correspondents in the Palm regions, to avail themselves of the facilities thus offered to acquire fruit. These latter vary considerably in bulk, some being the size of Peas, and others as large as a man's head; but it is with the smaller-growing kinds of such genera as Calamus, Geonoma, Dæmonorops, and a few others, that we would now occupy ourselves. The seeds germinate in a moist bottom-heat of about 70°, in a compost of fresh turfy loam, with the addition of a little peat and sand, plunging the pots in which they are sown in cocoa-nut fibre or tan. They vary considerably in the time required for germination; some make their appearance in a few weeks, while others require months in which to show any signs of vitality. The fruit of Phœnix dactylifera—common Dates of the shops—will germinate in three or four weeks, as a rule, in a suitable temperature; and the best way to obtain a stock of this plant would be to buy a few pounds of Dates, at the cost of say a shilling at the most, and plant them as above recommended. Though it is not one of the most graceful, still it shows well in a collection of stove plants, and will bear a considerable decrease of temperature. Some of the cæspitose species, as Phapis flabelliformis and several Geonomas, may be propagated by offsets, or what are technically known to the craft as "suckers."

The majority of Palms are very easily cultivated in an ordinary

Digitized by Google

plant-stove or tropical and intermediate Orchid-houses; while some of the species derived from elevated habitats will thrive in an ordinary greenhouse or conservatory during the winter months, and figure very conspicuously in the "sub-tropical" garden during the summer. As to the species most worthy of cultivation, much will, as a matter of course, depend upon taste and the particular object for which their charms are desired. Some, as the graceful slender-stemmed Chamædoras, are admirably adapted for grouping with foliage or flowering plants and Orchids, possessing, as they do, all the general characteristics of the larger species when but from 6 to 10 feet in height.

When growing they require a large quantity of water at the root, and frequent syringing with water free from mineral impurities will be found to have a beneficial influence, and conduce greatly to their freshness and vigour. When the pots are nearly filled with roots, and it is not expedient to shift them into larger sizes, it will be found a good plan to set the base of the pot, say to a depth of a couple of inches, in a tank or other receptacle of water at hand, from which they may draw their supply.

The following are choice species:—

Chamædorea Ernesti Augusti.—This beautiful species has a few dark-green bi-lobed leaves, about 2 feet long, and half as much across, borne on an annulated stem about an inch in diameter.

C. elegans.—Stem 6 to 10 feet high, terminated by five or six glossy-green pinnate leaves nearly a yard long; and, like its congener above, the female plants bear shining-green fruit the size of Peas on a rich vermilion-coloured spadix. These spadices remain a long time on the plants, and form a pleasing contrast to their shining green foliage.

C. Wendlandii is another pinnate-leaved species, and being one of the more graceful in appearance, is eminently adapted for decorative purposes.

C. Desmoncioides.—A delicate-looking slender-stemmed plant, with glaucous petioles and dark-green pinnate foliage.

C. graminifolia.—This almost rivals the beautiful Cocos Weddeliana in the extreme elegance of its gracefully-arching pinnate leaves, and is much cheaper to procure. For a table plant it is equal to any in the genus.

Malortiea simplex.—Here we have a dwarf but extremely useful little plant, well adapted either for vases, decorations, or for grouping with Orchids and other flowering-plants. This should be in every collection.

F. W. B.

Digitized by Google

TRILLIUM GRANDIFLORUM FOR WINTER DECORATION OF THE GREENHOUSE.

This remarkably beautiful and interesting hardy spring flower may safely be added to the increasing group of useful plants whose flowers may be enjoyed for four or five months on end, first under glass by a mild system of forcing at Christmas, and afterwards by successive relays till the middle of April, when it begins to flower in ordinary out of doors. I know no more charming plant for greenhouse or conservatory embellishment in the early months of the year. It lacks the delicious perfume of the Lily of the Valley, but without detracting in the least from that justly popular flower, it may be said that this eclipses it in every other quality. The delicate grace of the Lily of the Valley is matchless in its way, but a well-grown mass of the Trillium placed side by side with it asserts its superior charms by drawing the eye to and fixing it on itself. The pure snow-white flowers and the dark olive-green leaves, along with the unique style of growth and structure of the plant, fix the attention at once and claim admiration. It is a striking as well as a beautiful plant, and striking on other accounts than its beauty. I am of opinion that when it becomes better known it will be in as general request for forcing as Lily of the Valley itself. Meantime it is comparatively scarce, and by no means likely ever to be so plentiful as the latter, because it is naturally much slower to increase. Yet it is a very easily-managed plant. The roots are tuberous, and when they are to be forced it is necessary to lift and pot them in early autumn, as they begin to push fibres early in the winter; and it is needless to remark that it is important that this should not be injured by late lifting: the best time to lift them is immediately after the leaves decline. A compost of rich turfy loam, with about one-third of well-decomposed old manure and a liberal allowance of sand, is a very suitable one, but the strength of the plant and beauty of the flowers are more dependent upon the strength of the roots than the quality of the compost; it is therefore necessary that they should be well cultivated in preparation for forcing, and that the strongest and most equal-sized roots should be selected. The plant delights in much moisture at the roots, but stagnation quickly cripples it, therefore drain the pots well. After potting they may be plunged in the open ground, taking measures to prevent worms from finding their way into the pots. If they can be accommodated with a cold frame in winter, the transition, when they are brought into heat, will be easier and more natural; but it is not essential; only it is requisite, if they are left in the open ground, to cover the pots over an inch or so, in order to prevent frost from acting on them injuriously, and to keep the roots more equable as regards temperature. They may be brought into heat along with Lily of the Valley, and if treated in the same manner will bloom a little earlier, being easier stirred into action, and quicker to reach full development, than the Lily. In the open air it delights in spring showers, but in forcing, during the short dark days of winter, a very liberal use of the syringe is injurious to it after it has fairly started to unfold leaves and blossoms; yet it requires a moist atmosphere to develop it well, and this may be secured in the usual way, without the use of the syringe. If not allowed to remain in the forcing temperature after the leaves are well unfolded, the plants will finish better in a light greenhouse, and the flowers will last longer. When the flowers fade, remove the plants to a close cold frame, and protect them from frost. Give water till the leaves die down, and in no way hasten this consummation. The same roots should not be used two years successively for forcing, early or

Digitized by Google

late, a year of rest in the open ground being necessary to enable forced roots to recover vigour; and in order fully to do so, let them be planted out as soon as practicable, after the weather becomes moderately mild in spring, in a rich, deeply-dug border, leaving the mass of fibres intact. In potting up the roots, as many as a dozen strong ones may be placed in a 7-inch pot. These will each throw up two or three stems each, and each stem will produce one of the peculiarly beautiful flowers. The flowers last in perfection, even in winter, a fortnight or three weeks, and proportionally longer as the day lengthens. W. S.

CULTURAL HINTS ON RHODODENDRONS FOR INDOORS.

To the only partially initiated it is easy to conceive how difficult the task of selecting a list out of the immense array of distinguished sorts, all of which, claiming a place in our esteem, are now at our command. Indeed, we should deem it an act of vanity or assumption on our part to designate our chosen few as the "cream," or, moreover, to explain how confounded and undecided the mind of that person is, who is environed or hedged round by well-done examples of the finest varieties while in the height of their bloom and beauty. So bewilderingly splendid are a great portion of them that the mind of the beholder is apt to become mazy while attempting to decide which are the most meritorious. Still, independent of those impediments, we shall venture our little list to those whose desire is only to have a select few.

Earliest Kinds best adapted for Forcing.—Similarly to most others who have written on the subject, we must begin with the widely-known and greatly-valued Nobleanum, of which there are two forms, the one brisk crimson and the other rosy pink. Then as a suitable companion and relation, Nobleanum-album, the ground colour of which is white, with mottlings of rich brown. The habit of both is dwarf, densely supplied with moderately-large leaves, which, unfortunately—on some soils—are apt to get the margins destroyed by slugs. Indeed, in some cases the foliage is eaten to the backbone, and the plants thereby very much deformed. To prevent this in a great measure, scatter soot all around the plants in dry weather, and also dust the plant with the same before the dew has evaporated from the leaves in the mornings.

When plants are about to be forced for the first time, they ought to be potted in September and placed in cold frames, husbanding every blink of sun to their advantage, so that the bloom-buds are early matured and the plants get an interval of rest before being again excited into growth by artificial heat. This is more especially necessary with those than others that have been formerly submitted to early forcing; moreover, if anything like success is intended to be arrived at, hard forcing must be avoided, at the commencement in particular. It is soon enough when healthy signs of action are exhibited in the flower-buds, which is shown by the crown becoming elongated and swollen, while, at the same time, a glutinous matter is exuded from the calyxes which embrace and shield the florets before they separate and expand. Relative to potting and the proper compost, every one knows that free, roughish, fibry peat forms the major portion. This, along with about a sixth part well reduced cow-manure, and the same proportions of leaf-mould and coarse river-sand, meets their requirements to a nicety.

Good drainage is also most essential; and when we note this, we do not mean a few broken pots placed immediately over the hole, but say a layer of

Digitized by Google

a couple of inches for a pot 10 inches diameter; over this let there be a nice compact covering of matted fibry pea; then water may be administered copiously when desirable, without endangering with a soured sodden bed the ball of roots.

The next item to consider is the size of pots to use. By no means use large ones in proportion to the balls; rather a size only sufficient to admit them—after a succession of knocks on the bench—along with a thin lining of the fresh compost.* Water moderately until the buds start, after which water may be given without measure up to the time that the young wood has finished growing. It is not advisable to bring out the blossoms in the face of a bright sun, but rather to have a light shade over the house to subdue the bright rays: with this precaution, and a slightly-moistened atmosphere prevailing, I am persuaded the flowers develop to greater size, with the addition of possessing richer colour and finer texture.

With respect to the subsequent wants of these plants from the period they are out of bloom, how common the practice to discard them to the forgotten corner, supplying perhaps a drop of water once a-week, and what falls from the clouds over them! With such treatment is it astonishing that they are short of perfection at the end of summer? Instead of being thus forgotten as soon as their flowers perish, allot them a place in the greenhouse commanding a nice, light, warm, airy aspect; water constantly and abundantly. The soil ought to be always kept moist, so that no check may take place while the plants are in growth. When all fear of frost is past, group them plunged in some sheltered spot just out of the glare of the mid-day sun, and lessen in proportion the water supplied them, but be very careful that the soil in their pots never gets dried up; and when young flower-crowns are swelling, see that weak liquid-manure be supplied now and them.

With those few cultural remarks, which apply to all sorts alike, we shall introduce a few of our favourite species to the notice of our readers.

We can recommend the following as worthy of the notice of our readers:—

At the outset we have mentioned the Nobleanums; let us class with them, as early forcing sorts, Ciliatum. This, a small-leaved dwarf-grower, prolific flowerer, with well-expanded, solid, slightly blush-white blossoms, forces readily. Præcox, dullish lilac, not the most charming colour, but exceedingly useful, as it is the easiest forced of all the Rhododendrons; in habit compact, flowers moderate size, campanula formed. Limbatum is the next earliest to unfold its beauty, and it is as beautiful as it is distinct: its chief characteristics are the perfect form of its flower clusters nestled among the upper set of leaves which partially incline upwards, extending also about 2 inches beyond the blossoms all round, affording a neat margin of green of the nicest regularity; in short, just cut a few inches of the stem below those set of leaves that form the base of the crown, and a perfect hand-bouquet is completed with one stroke of the knife. The next marked distinction of Limbatum is that two-thirds of the lower portion of the floret being pale blush, and the upper third dullish crimson, both colours are regularly defined and contrast strikingly. The next to display its perfect and delicate outline is Guttatum, of a colour which few, if any, can eclipse. Its crown of flowers partakes more of the conical than globular in outline, perched on the summits of the growths at what seems a

* While potting, it is most essential to perform the same with compost moderately dry, so that it admits of being pressed tight together into a compact whole.

Digitized by Google

nice distance from the leaves, which latter slope gracefully from the base of the cluster, imparting a very bold, airy effect, while the disposition of the flower-pipes is so regular the whole seems as if moulded. In colour the flowers are white, having the inner surface of each division pencilled into feather tracings by dense reddish-brown markings. These markings are both fewer in number and less densely present on the lower pair of divisions of the corolla than the three upper ones. As regards form in the individual flower of R. Guttatum colorans, they are rather shallow, but expansive and regular. R. Falconerii is the admiration of all beholders; and no wonder, so lovely are its silken blossoms, each in itself a perfect model for imitation: comparatively speaking, its flower-trusses are of immense size, and rest like little domes on the masses of grand leaves, while its flowers are exceedingly large, bell-shaped, each corolla being divided at the margin into nine separate segments; those segments overlap one another, thereby forming a neat frill around the opening of the flower. In these the flowers are white, overshaded by a faint green ray, which flits and returns when the flowers are moved into different positions in the light. Texture polished, solid, thick, of some transparency, appearing as if moulded in wax. The veins are conspicuous from their glistening and yet more transparent nature, overspread in intricate tracery over the entire surface of the flowers; but not the least distinguished feature of this flower is the dense maroon star that is stamped over the centre of the corolla.

Countess of Haddington, if not so noble as Falconerii, is yet more useful for all purposes, and commands a fair share of admiration. Not only is the Countess a certain flowerer, but also a ready forcer. The form of the flowers is linear-campanulate, of fine form and substance, colour white, suffused with blush, of silky solid texture. The interior of the throat, from the junction of the corolla with the capsule, is brushed irregularly with pale yellow half-way up the ridges. Taken all in all, the Countess of Haddington will vie with any hybrid sprung from the Sikkim family.

Next on the roll comes Napoleon III., a fit associate for R. guttatum colorans in habit and other characteristics; only Napoleon is brisk rose-crimson, furnished with dense black pencil-markings, which extend over two-thirds of the florets. One peep at Napoleon alone is sufficient to command the esteem of Rhododendron lovers.

Then again, after the same strain, but darker, comes John Waterer, a grand sort. Colour deep crimson, mingling a shade of maroon. Truss perfection, in the fullest sense of the word, less or more freckled within the corolla with brown.

Joseph Whitworth is one of the best, alike in size of flowers, substance, form, and colour. Its peculiar shades are not easily described. The ground-colour seems to be crimson, but such a happy combination of maroon and claret exists in the composition that it is hard to say which predominates. This, with the interior feathered by dense, black, oval spots, somewhat explains its appearance.

Dalhousianum.—As a standard this noble species is truly imposing. Its superb blossoms, ensconced on and overhanging their elevated platforms of leaves, are effective in the highest degree. The flowers are of immense size, somewhat bell-shaped, with a slight contraction occurring a little beneath the margin. They are straw-colour, suffused with yellow. Dalhousianum once seen can never be forgotten, but has only one fault; viz., its flowers do not last long, unfortunately.

The remaining few I must pass over as briefly as I can, as too much space is

Digitized by Google

already occupied, but we cannot altogether overlook them, seeing their colours are required to represent the principal shades in our list.

Eclipse, a most lively lilac, with a few touches of cinnamon on the uppermost division. Bicolor, white, suffused with pink about the lips, and a few scattered mottlings of yellow, faintly visible inside the flowers. Delicatissimum, white, faintly-shaded rose blush, pencilled yellow on the upper division of the flower.

Noble's Queen.—Flowers white, shaded blush at the earlier stages. The top petal partially suffused and distinctly mottled, primrose yellow. Perfection in every property looked for in a Rhododendron. Jean Stern, another not a shade behind, also white, but with maroon pencil mottlings on the upper petal. Both should be in every collection. Last and not the least comes Iago. Brilliant transparent rose-crimson, with thickly-set maroon markings above.

A. KERR.

BOUQUET-MAKING.

I OBSERVE in the report of last month's Exhibition of Plants, &c., at Edinburgh, that the Bouquets were not equal to some which have been exhibited in former years. This is becoming an old story. Some exhibitors who have retired from the field censure the present style of bouquet-making in no measured terms, and the judges also come in for their share of abuse. I have never exhibited any Bouquets at Edinburgh, and therefore would not give great weight in offering any suggestions as to how they should be made; but it is evident that this remains an open question, and judgment is given according to mere taste. I was looking at the Bouquets in the Music Hall during the exhibition, and heard the judgment criticised severely by (apparently) some old hands at the art. In one class they would have had the third first, and *vice versâ*. In another class they would have given no prizes at all, and so on. My opinion was that the judges were correct in their verdict, and that the Bouquets were not far behind former years. Of course this is only opinion. Could not some of the "old hands" give a definite rule to guide those who compete, and, I may add also, to encourage those to come forward who are timid, and will not run the risk of satisfying mere taste, which varies more than the colours of the rainbow? It is suggested by some that ladies should judge Bouquets, but I have good reason to believe that they are far from being of one opinion on this matter. The late Miss Catleugh of Hans Place, London (sister to Mr W. Catleugh, florist at the same place), was considered one of the best Bouquetists of her time, having received instructions in the art on the Continent. That lady seldom met with two individuals whose tastes were exactly alike, but her experience enabled her to please all and sundry who were purchasers, and they were from a wide circle of ladies located in the west end of London. Some preferred formal others "feathery" Bouquets in endless shapes and sizes. There were

Digitized by Google

French, English, Spanish, and other names given to distinguish the style of a Bouquet required; and models of these, with their prices attached, allowed the purchasers to make their choice at a glance. Those with Gardenias, Stephanotis, and other high-class flowers, always realised double the price of Bouquets composed of common and less valuable flowers.

Horticultural Societies have not done much in raising a standard by which judges are to be guided in giving a unanimous verdict when deciding the merits of either Plants, Flowers, Fruits, or Vegetables. Cultivators, generally, would gladly educate themselves in these matters, but they have no opportunity of doing it. It is well known that some successful gardeners have no chance of becoming the "third parties" as judges at Horticultural Exhibitions, where they might pick up a little instruction, and in time judge as correctly as others; and this is a reason why judges are so often selected from a circle who are more or less engaged in the work every season. But till we have a "standard" there will appear, more or less, on our Exhibition-tables stiff Bouquets "not equal to those of former years"—formal Azaleas, all flowers and no leaves; green-looking, rough-skinned Peaches, only fit for the kitchen; Grapes loose in bunch and without colour, &c. Can none of our able and distinguished horticulturists come to the rescue and fix a standard?

M. TEMPLE.

CUCUMBER-CULTURE.

NO. II.

Management after Planting in the Fruiting-pit.—As soon as the heat rises to 70° the pit is ready for the plants, which should be allowed to become rather dry at the root before being planted in the bottomless pots. Their stems should be covered in planting nearly to the seed-leaves, and an inch of the pots left unfilled for watering conveniently and efficiently. Fix a stake to each plant for support till they clasp the trellis with a tendril. Settle the soil about their roots with water at a temperature of 80°, through a rather fine rose; shade lightly in the middle of the day for a few days if the sun be strong. And now for a start.

The night temperature should be as near 72° as possible—say that it ranges between that and 75°, according to the state of the weather. As the heat will be strong from the fresh linings for a time, a covering over the glass of a single mat will be sufficient, except in cases of severe frost, when double mats may be necessary. Push down the lights from the top early in the afternoons of bright days, and discharge a few syringefuls of warm water round the walls and over

Digitized by Google

the surface of the soil, but miss the plants. Then shut the pit entirely till covering-up time, when a chink of air should be put on for the night in case there should be any unwholesome gas from the dung, and also to prevent a weakly growth. They will commence to grow rapidly in eight or ten days after they are planted, and when uncovered in the morning dew-drops will be seen round the edges of the leaves, and white thread-like roots will soon appear on the surface of the soil in the pots. Pinch the top of each plant as soon as it gets to within 2 inches of the trellis, after which they will soon force a lateral growth at nearly every joint; these laterals should be all removed except the three at the top of each plant. As they expand their leaves and establish themselves above the trellis, remove by degrees those that are below it, and stop the three top growths at the second joint, and afterwards at every joint.

Should the middle of March prove mild, do not let the night temperature exceed 75°, with at all times a small amount of air on all night. Increase the air in the morning as soon as the heat reaches 80°, and continue to take every opportunity afforded by sunny weather of shutting up early in the afternoon with a moist atmosphere, so that the temperature may run up to 85° for an hour or two. After a sunny parching day, such practice wonderfully refreshes the plants. Always be watchful that they never receive a check from becoming too dry at the roots, for the Cucumber, after it gets into full growth, with its immense surface of active leaves, requires a great supply of water. The surface of the bed in the bottom of the pot is not so apt to get dry, being shaded and level, but that in the pot gets dry more quickly.

We have generally cut Cucumbers within six weeks after planting the plants in the fruiting-pit. When they begin to bear, it is an error to let them bear too freely at first; a few should only be left to each plant until the whole trellis is covered with foliage, by which time they require to be looked over every third day to stop, thin, and regulate the growths, so that each leaf has plenty of room to expand properly and fully perform its functions. There is no greater error than the crowding system. It ends in weakly growths, damping leaves, and malformed useless fruits. We are of course presuming that the linings have been attended to whenever signs of declining heat have been noticed. There should always be a sufficient amount of fermenting material mixed and in a hot state, ready to mix into or partially replace the linings when they cool. It is best to renew the back lining and one of the ends, and the front and other end lining alternately. April is a deceptive month to the inexperienced, and as comparatively warm is then often suddenly succeeded by very cold

Digitized by Google

weather, the linings should be kept in an active condition to be able to compete with these changes, and double and single coverings used over the glass as such weather renders it necessary.

After the beginning of April, the foliage may be sprinkled all over through a fine rose on the afternoon of every fine day, and the pit closely shut up and aired afterwards as already directed. More frequent waterings will be required as they come into free bearing and the sun gets more powerful, rendering much more air necessary; and occasional watering with dung-water will be beneficial. Keep them always regularly stopped and thinned of all superfluous growths and leaves, being careful never to remove the leaf from a joint where there is a fruit swelling off. Never allow the growths to run beyond one or two joints without stopping them. This treatment carefully carried out will keep them always in a vigorous and fruitful condition, and producing fine straight Cucumbers beautifully covered with bloom, and the flower fresh at the end of each when ready to cut. As the season advances, and they have been in bearing for some time, remove by degrees the older growths and foliage, training younger ones into their place. This should be diligently seen to the whole season, so that the pit be kept full of young bearing growths and healthy leaves, without which a regular supply of Cucumbers cannot be maintained. Under such treatment we have invariably had these early plants as healthy and fruitful in the end of September as in May, and have seldom been troubled with insects or disease.

After the first week of June fresh linings are unnecessary in the southern half of England, but in more northern districts it is necessary to attend to them a little later. In the hottest weather, especially when such has been preceded by a continuation of dull days, a slight shade in the middle of the day is sometimes beneficial. When it is desired to have these plants healthy and bearing after September, it is necessary to apply fresh linings, or mildew will soon destroy them. The foregoing directions, we trust, will be sufficient for those who can only command a brick pit and heat from fermenting material with which to produce spring Cucumbers. Those who only grow them in summer will find them so accommodating for four or five months of the year that directions specially for that season would be a waste of words. For any one who has a frame, a little fermenting material, such as litter and short grass or leaves, and glass lights, can have little difficulty in rearing them in summer in almost any district, while in the south the ridge varieties do well in the open air the same as Vegetable Marrows or Pumpkins. And without adverting to the undesirableness of attempting to supply Cucumbers throughout the dull winter months in dung-pits, we will now offer some remarks on their

Digitized by Google

winter management in Cucumber-houses, or stoves heated by hot water.

Winter Cucumbers.—Experienced gardeners know very well that wherever sufficient space can be afforded in such as a fruiting Pine-stove, where a high temperature is necessary, there is no great difficulty in keeping up a tolerably good supply in the winter. We are, however, not going to recommend their being mixed up with Pines or anything else; although circumstances can be modified to suit different subjects, such is not desirable. And now, where there is a demand for Cucumbers all through the winter, there is generally a house or pit specially for that purpose; and as in the case of the winter-forcing of the Vine or any other plant in midwinter, a lean-to house facing due south, with a white back-wall and white painted woodwork and clear sheet-glass, is the best. And the greatest amount of sun and light that can be had is perhaps of more importance in the case of winter Cucumbers than any other crop.

Fig. 4 represents an excellent house for winter Cucumbers. Such houses are wired the same as for Vines. A half-span house 10 feet wide requires four rows of hot-water pipes for surface and as many for bottom heat, whether the latter be on the tank system or merely a hot-air chamber, both of which suit equally well, and the latter is the least expensive. The bed for the soil should be 16 inches deep, giving room for 6 inches of drainage or fresh leaves, and 10 inches for soil.

In filling up this depth of soil, we do not recommend more than 8 inches at first when the Cucumbers are planted, nor need the bed be filled the whole width, the other 2 inches to be made up with top-dressing, and the whole of the bed to be filled in after the plants come into bearing. The soil should consist of light turfy loam two parts, and one part of leaf-mould or well-decayed manure, with a sixth of the whole of coarse sand, pounded charcoal, or charred soil: a light open soil is best for winter Cucumbers. A soil that is likely to become solid and inert is at all times an evil in Cucumber culture, and more especially so in winter.

To have plants well established and in a strong-bearing condition before winter, they should be planted out in the fruiting-pit by the end of August or very early in September. Some cultivators prefer raising plants intended for winter-bearing by cuttings, which are rather more disposed to fruitfulness in their earlier stages of growth, on account of their less vigorous growth, than seedlings. They are easily struck in a frame or pit with a little bottom-heat. The best way is to strike them singly in 4-inch pots, with a little sandy soil round the base and neck of each cutting. Good plants can thus be prepared in three weeks. When raised from seed, it requires to be

Digitized by Google

sown in the beginning of August. We are aware that many do not sow so early, but later sowing is a mistake, as the plants should be thoroughly established and beginning to bear by the middle of October,

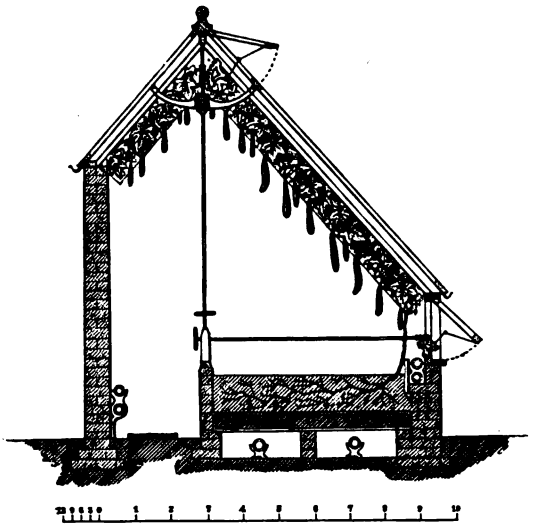


FIG. 4.

in order to have a good supply through the winter. And by a proper selection of varieties, there is no difficulty in getting seedlings to bear well enough sown as early as recommended, and they generally yield finer individual Cucumbers.

The plants should not be planted closer than one every 2 feet, as crowding in the dull months of winter is very injurious, and throughout September and October they are all the more sturdy and hardy when grown with a liberal amount of air. A thin flimsy foliage grown in a too close moist atmosphere too often becomes a prey to thrips and red-spider, two enemies which should be kept at arm's length, and to which end the house should be thoroughly washed and fumigated before planting the plants, and no old Melon or Cucumber soil where these pests have had a footing should be used. When they begin to bear avoid heavy cropping, and when November arrives be more sparing with atmospheric moisture and waterings, and avoid high night-temperatures, which should not range higher than from 68° to 70°. The consequences of a high night-temperature, when the days are short and dull, are weakly and unfruitful growths. A covering over the glass in cold weather is much to be commended; it saves firing, and is in all respects preferable to over-heated pipes. Frigidomo is an ex-

Digitized by Google

cellent material for covering, and can be fixed to roll up and down like a shade. It is most important all winter to give a little air every day when at all practicable, and also to prevent the leaves from becoming crowded, and to stop the lateral growths at every joint.

Training, Stopping, &c.—These plants should never have the leading shoot stopped till it gets within half-way to the top of the house, and after that not again till it reaches near the top. The lateral growths show fruit freely when stopped regularly. It is well, too, especially in winter Cucumbers, to remove the male blossoms as soon as they are discerned. Impregnated Cucumbers are never so equal and good as those which are unfertilised, and, except for seed, no impregnation should be allowed; and we cannot impress too strongly the fact, that to have a constant supply of good Cucumbers over a length of time, overcropping must be avoided by removing those not absolutely required. It is a tempting sight to have a fine display at one time. It looks well while it lasts, but the plants will rebel by resting for a season after the effort.

After they have been bearing some time, and give indications that a top-dressing would be beneficial, mix two parts old mushroom-bed or old hotbed manure with one part of turfy loam, and cover the surface of the bed to the depth of 1 inch or a little more; and after the turn of the season, about the end of January, apply a similar covering to the roots that will have seized upon the first dressing. With increased daylight they will do with increased moisture, and these top-dressings will cause them to grow more strongly, and they will go on bearing under similar treatment for a long time. It is, however, desirable, when convenience exists, to raise more plants to come into bearing in spring, and, if necessary, to introduce a new set of plants into the winter-house to bear through the summer, or to allow of its being devoted to propagation or any other purpose. Not that this is absolutely necessary, although desirable, for the same plants under careful treatment often go on bearing until the house is needed for another winter set of plants.

Thrips and red-spider are very apt to be troublesome on winter Cucumbers, and their first appearance must be the signal for their destruction. The best way is to sponge the leaves carefully with a soft sponge moistened with weak tobacco-water, immediately either or both of these pests appear. To smoke with tobacco severely enough to destroy, is very apt to injure the edges of the tender leaves in winter. In the spring the syringe should be applied occasionally in bright afternoons at shutting-up time. Green-fly can be kept in check by the syringe also, and, being easier killed than the thrip, with moderate fumigations of tobacco-smoke.

Digitized by Google

Most growers have favourite varieties that they grow; our own experience leads us to recommend for—

Summer Crops.	Winter Crops.
Volunteer.	Volunteer.
Telegraph.	Sion House, Improved.
Blue Gown.	Weedin's Black Spine.
Long-gun.	Telegraph.

Lord Kenyon's Favourite is a sure cropper in winter, and has a hardy constitution, but the fruit are short. Volunteer is the most generally useful Cucumber we have ever grown for both winter and summer, and we have tried scores. D. T.

CAMPANULA VIDALII.

This little-known half-hardy plant is one of the most beautiful of the numerous and ornamental family to which it belongs. It is a native of the Azores, having been found by Captain Vidal, after whom it is named, on Flores, one of that group of islands. When first introduced by means of seeds by Mr Wallace two or three and twenty years ago, it was feared that, being a maritime plant, it would prove difficult of cultivation. But experience has removed this impression, for among really valuable ornamental plants there are few more easy to cultivate. The beauty of the flowers, their profusion and long-lasting quality, commend this Campanula powerfully for the purpose of summer and autumn decoration of the cool conservatory or greenhouse. The distinct type of its beauty and habit of growth distinguishes it from anything at present in general use for conservatory embellishment. Well-grown plants, either large or small, with their masses of creamy-white flowers in sturdy yet graceful spikes or panicles, would contrast well with and relieve the masses of Pelargoniums of various kinds that are to an almost exclusive extent so generally employed during summer and autumn in the conservatory. The Campanula will cost no more but rather less than those latter in the shape of trouble and labour, while in most respects their culture, after they have passed the seedling stage, is so much alike, that it may be conducted in the same structure or under the same conditions, whether indoors or outdoors, during summer. I have seen it succeed very fairly as a bedding plant in the hot dry neighbourhood of London, but thought it suffered rather from atmospheric than earth drought. I used to keep up a specimen of it in its place, out of doors, in the herbaceous department at Kew, but the hot sandy soil and arid atmosphere at midsummer proved rather trying to it: it lost much of its foliage, thou h its flowers endured well.

Digitized by Google

In all the warmer coast localities of England, Ireland, and Scotland, except perhaps the north-east coast of the latter, there is no doubt it would succeed well as a bedding-plant, and as a summer and autumn flowering auxiliary to the mixed border. For this purpose it would require different treatment to those that might be grown to full-sized specimens for indoor purposes, but more of that afterwards.

The habit, it has been stated, is good, and the flowers profuse and beautiful; but a little more particular description of the whole plant may serve to interest my readers a little more deeply in this very ornamental subject. I have never grown plants of a greater age than three years, and think that they are not worth growing after two years, because the perfection of the habit is reached then, and begins to decline afterwards. A well-grown two-year-old plant will be furnished with several tiers of stout branches arranged in the fashion of a many-branched candelabrum, and extending in all directions from the stem about 18 inches outwards, but somewhat graduated in length, the lower tiers being longest, the upper ones shorter, and the plant will be about 3 feet high. The leaves are thick, softly leathery, dark and shining green, about 5 inches long, half an inch wide at the point, and diminishing slightly towards the base, and arranged in a loosely roseolate fashion at the extremities of the branches. The flower-stems terminate the branches, and are from a foot to one and a half foot in length, bearing numerous creamy-white pendulous flowers in open spikes or panicles. The flowers are about three-quarters of an inch in length, and nearly as wide at the base, but narrower at the mouth or opening of the corolla, the extreme edge of which is slightly recurved. Like the leaves, they are thick and of a shining waxy appearance, and retain their freshness for a long time after opening.

As to cultivation, it has already been stated that the plant is perennial, but is liable to decrease in beauty after the second year, if it has been well grown and freely flowered. This is owing to the fact that the branches after flowering die off, and are not reproduced, but merely succeeded by new tiers higher on the stem, thus causing annually increasing legginess. This being the case, it is requisite to treat the plant after the manner of biennials, so as to have an annual succession of young vigorous stock. Plants may be flowered the first season from seed if desired, but will be small, though no doubt useful in many ways, coming into flower as they do in the months of August and September. In order to flower them the first season, the seeds should be sown in a propagating-house or hotbed in February: if not to be flowered the first season, sowing may be deferred till the end of March or beginning of April. The seedlings should appear in ten or fourteen

Digitized by Google

days after sowing, and when they can be handled, should be pricked off into small 60 pots singly, and placed in a mild hotbed. When they are well established in these, let them have another shift, and be established in the larger pot before taking them out of heat. They may be grown either in the open air or in a cold frame during summer, the latter being preferable, because they are then subject to fewer alternations. Shifting on as they increase in size will require to be carefully attended to; but if they are to be flowered the same season there must be no shifting after the end of June, till the flower-stems begin to make their appearance, when they may receive a small shift. Those that are not to be flowered till next year may receive their last shift for the season so late as the middle of August. A cool rather dry greenhouse temperature is the best to winter them in: if frost is kept from them, that is all the protection they require from cold, but they are impatient of damp. In pot-culture, a compost of turfy loam two parts, with one part old well-decomposed manure, and a very liberal dash of gritty sand, and nodules of charcoal or old lime-rubbish with the dust sifted out, will grow the plant to perfection. It requires to be well drained, but also to be well supplied with water when making growth, and is benefited by occasional waterings with liquid manure. In large specimens the branches may require the support of stakes as they begin to increase in weight before flowering, but they acquire their natural symmetry best when left alone till then; and unless the specimen happens to be deformed from any cause, any artfulness in training is neither needful nor tasteful.

Plants for the flower-garden should not be raised till June; they will not flower early enough to be of any use in the open air the first season, no matter how early they may be raised. Three-inch pots will be large enough to winter them in, and in the following March early they should be shifted into pots two sizes larger, which, if space cannot be allowed for larger plants than these are capable of sustaining, will be sufficient for them till they can be placed in the open ground. About the middle or end of July they will begin to unfold their flowers, and will continue to do so to the end of the season. The trouble and labour of tending seedlings of this description for nearly a whole season will present a serious objection to the adoption of this fine plant as a bedding subject, especially where labour is at a premium; but stock cannot be kept up satisfactorily in any easier way. Cuttings root freely enough, but are difficult to get in quantity, except duplicates or reserve plants are kept for the purpose of yielding stock. Another objection to cuttings is that they branch less freely, and consequently flower less profusely, than seedlings. W. S.

Digitized by Google

NOTES ON A FEW FLOWERING SHRUBS AND PLANTS.

Who among us has not been struck with the beauty of our hardy shrubs and herbaceous plants at this time of the year, telling us, as it were, of bright and sunny days to come, and gladdening our hearts with their various hues and delightful scents? I think every one will give precedence to the Laurustinus, for it comes into bloom almost before winter fairly sets in, and continues blooming until summer is with us. We have a nice row of plants at the present time one mass of bloom, and have been so all through the winter: of course, having had such a mild winter, they are extra good, and have been very useful for cut-flowers. Besides the Laurustinus, we have another useful tree in the Japanese Quince, Cydonia japonica: although not so useful as the above, it is certainly a very useful and pretty tree, either spurred in as a bush or trained against a wall. It blooms very early, and lasts in bloom for a long period, and really looks splendid, with its large scarlet blooms contrasting with the Mahonia aquifolium and Berberis Darwinii, the former with its pretty yellow flowers and prickly broad foliage, and the latter with its orange-coloured blooms. Then again we have the numerous varieties of Ribes, with a mixture of white, purple, green, red, crimson, pale pink, dark pink, suitable for any part of the shrubberies. We have also an endless variety of Rhododendrons of all shades of colour—Pyracanthus, with its pretty berries; Cratægus, Kalmias, and a great many others; all taking their respective turns for blooming, helping to keep up a succession of flowers in our shrubberies.

If we turn to the herbaceous border, we have the Christmas Rose, Helleborus niger, and a very useful plant it is in winter for cut-flowers, if a hand-glass is put over them to protect them from the inclemency of the weather in winter. Then come the pretty Hepaticas, with their pink, blue, white, and red; and what is more showy in early spring than the varieties of the Leopard's-bane (Doronicum), nearly all yellow flowers? Why would they not be useful for spring bedding? They could be transferred to the flower-garden about October, and would come in bloom early in the spring. And what a pretty blue we have in some of the varieties of Venus's Navelwort (Omphalodes)! take Verna, for instance, with its Forget-me-not-like flowers. It is useful either in the recesses of a rockery or on the herbaceous border. Very pretty also during the past month has been the Anemone apennina, which contrasts prettily with A. nemorosa. Here in the south our woods and hedges are literally adorned with the latter, and very beautiful they look, with the Cowslip, Oxlip, and Primrose.

Of course there are a great many other plants that I have not named, but to me these appear very striking at such a dreary time of the year.

Balcombe Place, Sussex, *May* 12. G. Warren.

MUSA ENSETE.

Those who may have seen and admired the grand specimen of the above in the Palm-stove at Kew, may not all be aware that the plant develops itself perfectly well in the temperature of an ordinary conservatory. To give a good-sized house at once one of the noblest features of bold tropical vegetation, the Musa Ensete is deserving of all praise. We have frequently seen it used as a sub-tropical plant; but, unfortunately for this work, its large leaves are too apt

Digitized by Google

to be torn by the wind; and besides, it is too heavy a plant to be moved much about: and although we have seen it used as a sub-tropical plant, those that we have seen used for this purpose would not do well in a conservatory in winter. As a foliaged plant, this Musa is superior to all the other Musas with which I am acquainted—namely, M. sapientum, M. vittata, M. Cavendishii, and M. rosacea, but, unlike some of those mentioned, it does not produce edible fruit, and after it fruits it is said not to reproduce itself from suckers. I consider that it is a great boon or a great privilege to be able to obtain such a splendid foliaged plant as this for large houses, that will look well all through the year, even in mid-winter, when everything around is "dark and dreary." But this plant will require in the shape of room, to develop itself, at least a height of 20 feet, by as many feet in width. And another thing that may be here mentioned in its favour, for cool purposes, is, that the plant can be of service for a longer period of time in a cool house than it can in a hot one, because in great heat it grows so rapidly, and of course sooner matures itself (fruits), when it must be reproduced again from seed. This plant is one of those that require no labour in such work as tying and staking—a common thing amongst plants. It may require a washing occasionally to keep it clean of dust and free from red-spider, but with a little care this can easily be done. It will require most liberal feeding with liquid-manure, and will thrive well in any good rich garden soil. This plant and the Bambusa glauca are two as good plants as any that can be selected for giving large conservatories all the year round a tropical appearance. R. M.

FICUS ELASTICUS

(THE INDIARUBBER PLANT).

THIS is a plant every one should have in their collection (be it large or small), it is such a handsome and decorative one for the greenhouse or as a window-plant: it will do well for either, though of course it will grow quicker and finer in heat: it will stand well in a window or cool room, but must never be exposed to a sharp blast of wind, or the top leaf or point is sure to get nipped, and, to my mind, the shape of the plant quite spoiled, as I like to see it growing up straight and not topped to make it branch, as you see some people do.

It should be potted in a mixture of peat, loam, and sand. In the growing season it will require a good supply of water; indeed it always likes it, but requires it more, of course, when it is growing. If it is in a room, twice a-week at least the leaves should be washed or wiped over with a sponge; and if in the greenhouse, syringed. (I do my plants every morning.) If any leaf should happen to get broken off, the wound should be rubbed over with a little clay, or something of the kind, so as to stop the white liquid which will flow from and weaken the plant.

The Indiarubber plant can be easily propagated by cuttings struck in sand or sharp grit, though silver-sand is what is most used. I much prefer grit, as it does not run so much together as the silver-sand is apt to do; and also I find cuttings strike much quicker in it. They will require a nice damp warm atmosphere to strike in, and if possible a little bottom-heat (at all times they do better if the atmosphere is moist). I believe as a subtropical plant it also does very well, but I have never used it for that purpose, so cannot say from my own experience.

Digitized by Google

I am sure any one who will follow the above directions will find no difficulty in growing and keeping their plants in health. It is the way I grow my own, and at present the leaves run about 14 and 15 inches long, 5 inches across; and they made upwards of 22 inches of growth last season; and the plants look healthy and well, and have not one discoloured leaf on them. A. H.

UPPER NORWOOD.

ABUTILON MEGAPOTAMICUM.—As a plant for table-decoration, I know few that can be compared with the above, if grown in the following way:—Cuttings strike freely in leaf-mould and sand, or any very light soil, in a close atmosphere with bottom-heat; when rooted, pot off singly in 4-inch pots with turfy peat and sand. Return them to the propagating-pit for a few days, then remove to the stove; run them up with a single leader until they are at the desired height, then pinch out the eye, and pinch every shoot until you form a bushy head; regulate from 8 to 10 growths; give them all their own way until they are the desired length; tie all down to the pot for a week to assist its pendulous habit. This is the best marked of all the Abutilons; for a greenhouse, foliage, or weeping table-plant, there are few, in my estimation, that can vie with it. J. T. BURNS.

HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY, May 15 and 16.—*Fruit Committee.*—G. F. Wilson, Esq., F.R.S., in the chair. Mr Welch, Dorfold Gardens, Nantwich, sent a specimen of twin Cucumbers. Mr Mahar, gardener to A. Allhusen, Esq., Stoke Court, Slough, sent a brace of his Prolific Cucumber; a good sort, and very like, if not the same, as Blue Gown. Mr Gardiner, The Gardens, Lower Eatington Park, sent sprays of Apricot and Pear, showing the abundance of the crop of fruit in that part of Warwickshire, with the following communication:—"I forward to you a small box containing examples of fruit-laden Apricot and Pear shoots from trees in the gardens here, and which you will oblige by laying before the Fruit Committee to-morrow, with the accompanying paper. It may interest you to learn that I have a fair general crop of Apricots, and I have thinned them for tarts. One tree, however, is minus a crop, owing, I opine, to the effects of a very heavy crop last year, and the shade of a canvas which was applied for the space of two or three weeks to retard the ripening fruit. Of Pears I never saw a better crop here; Plums a fair general crop—both of which were secured chiefly by artificial protection. Apples, thus far, promise a very good crop here. Strawberries also abundantly bloomed; an evidence of the protective utility of 'Frigi Domo' canvas during inclement weather, whilst the trees were in bloom.—WM. GARDINER."

Mr Tegg, gardener to John Walter, Esq., Bearwood, sent three bunches of Black Hamburg Grapes, the same as those which received a special commendation at last meeting; also three bunches of Buckland Sweetwater and a basket of Peaches, all very handsome, and a cultural commendation was awarded to the exhibition. Mr John Monro, Potter's Bar, sent six fruit of Little Heath Melon, a large red-fleshed variety, one of which weighed 9 lb. It was awarded a first-class certificate.

Digitized by Google

Henry Webb, Esq., Redstone Manor, Red Hill, sent specimens of Pears, just set, attacked by an insect. Mr Webb offered a reward for a prevention of the pest in the following communication:—"I again call the attention of the Fruit Committee to the destructive effects of a small fly which deposits its eggs in the blossoms of our Pears, and in many instances, as shown by the example sent, every Pear on the bunch is affected. I shall be happy to offer a reward of £5 to any one who will point out how the evil effects of this insect can be prevented.—Yours, &c., HENRY WEBB."

It was reported that the Peas for experiment in the Chiswick garden are now coming into flower, and that those interested in the experiments may examine them.

Prizes were offered by Messrs Carter & Co. for the best dish of First Crop Pea, also for the best dish of any variety of early Pea. Mr Chard, gardener to Sir F. Bathurst, Bart., Clarendon Park, Salisbury, and Mr Brown, gardener to E. Mackenzie, Esq., Fawley Court, Henley, were respectively first and second for First Crop, and Mr Brown first for Little Gem.

Floral Committee.—W. Marshall, Esq., in the chair. Messrs E. G. Henderson & Son, Wellington Nurseries, St John's Wood, sent a group of plants, including several Orchids, Anthurium Scherzerianum with large spathes, and seedling Mimuluses; the latter received a cultural commendation. Mr Wilson, gardener to W. Marshall, Esq., Clay Hill, Enfield, sent a variety of Cattleya Mossiæ, with very large flowers, measuring 8 inches across. Mr Chalmers, gardener to J. Laurence, Esq., Beddington, sent a collection of cut-flowers of Hoyas, Justicia carnea, Clerodendron Thomsoniæ, and sundry others; also a box of the Indian Rhododendron Dalhousieanum. For the last named a cultural commendation was given. A like award was made to Mr Green, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, for a collection of Bromeliads, in which were Nidularia spectabilis with a crimson centre, and Pholidophyllum acaule with singular grey or greenish-yellow barred leaves.

Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, exhibited probably the finest flowering specimen of Vanda teres ever seen. It stood nearly 7 feet high, and had upwards of fifty flowers of large size. For this a cultural commendation was awarded, and another was given for a group of Orchids, consisting of several fine Cattleyas, a splendid plant of Oncidium altissimum, and Dendrobium devonianum. An unnamed splendid magenta-crimson Masdevallia, and Odontoglossum coronarium—reddish brown, with a yellow-and-brown lip—shown in the same collection, had each a first-class certificate.

Mr Masters, gardener to the Earl of Macclesfield, Tetsworth, sent Bougainvillea speciosa variegata with well-marked yellow variegated leaves, and bracts as in the green-leaved form; G. F. Wilson, Esq., Weybridge, Lilium Humboldtii, showing its leaves produced in nines at intervals along the stems; and Mr G. Smith, Edmonton; Mr Janes, Highgate; Mr Pestridge, Uxbridge; and Mr George, Putney Heath, Tricolor and other Zonal Pelargoniums. Mr Davis had a cultural commendation for the Pelargoniums before alluded to, and Mr R. Dean, Ealing and Bedfont, for Intermediate Stock Mauve Queen, with densely-packed heads of flowers 5 inches in length. Mr Williams, Holloway, sent Pink, White, and Mauve Queen Stocks; Messrs Carter & Co., Tricolor Pelargoniums, Solanum Capsicastrum Ivory with white variegated leaves, and Cordyline lentiginosa before certificated. Mr D. S. Thomson, nurseryman, Wimbledon, had a first-class certificate for Gloxinia Cecilia, large, white, with a purple throat.

Digitized by Google

E. Foster, Esq., Clewer Manor, had first-class certificates for Pelargonium Chancellor, rose crimson, with dark, orange-shaded blotch in the lower petal, dark crimson top, shading off to a magenta edge; also for Naomi, lilac rose, blotched in the lower petals, dark top. Mr Turner had a first-class certificate for Azalea grandis, and M. J. Verschaffelt for Agave robusta, Perringii, and Kellischii. Messrs Barr & Sugden, Covent Garden, again sent a collection of cut-flowers of Narcissus, together with Scillas.—*Journal of Horticulture.*

Calendar.

KITCHEN-GARDEN.

THERE will be abundance of work for some weeks to keep all hands busily employed. Seldom can garden matters at this season receive full attention in the best-managed place, so many operations require attention at the same time, which gives great anxiety to the cultivator. Among the more pressing duties are sowing and planting of winter crops, thinning, surface stirring and cleaning. The last must go along with the others, as an untidy garden is a profitless one, and no real enjoyment can be had in connection with it. Many of the Brassica tribe of plants will soon be ready for planting in their permanent quarters. They should have attention before they become crowded in the seed-beds or seed-rows: we always prefer short strong plants which are able to battle with drought, vermin, &c. Draw drills, smooth and round, as for Peas, and plant from 20 inches to 2½ feet apart: the latter distance applies chiefly to Broccoli and Cauliflower. Cabbage may be planted very thickly to supply young produce while the main crop is left on the ground at a proper distance. It is well to keep contemporary crops as much together as systematic culture will allow, as ground is thus easily managed and economised: keep always in mind that strength of soil must in a great measure regulate the distances of planting. Young seedlings should be kept clean and well stirred among the rows till they are fit to be handled, when they should be pricked out if time and space can be afforded. Walcheren, Osborn's White, and Granger's autumn Broccoli may be sown for a succession. Good breadths of Kale, Brussels Sprouts, Savoys, and Coleworts should be kept in reserve for planting up ground as it becomes vacant after such crops as early Potatoes, early Carrots, Peas, and French Beans. Though late plantation of the crops named should not become large, yet if planted thickly they will come in very useful, and perhaps stand severe weather when more luxuriant crops have been destroyed. It should be kept in mind that a garden with much empty space through the autumn and winter is great waste, and betrays want of industry. Choose sheltered positions for the more tender kinds of winter crops. The plants (before being placed in their positions) may have their roots and their stems as high as the leaves dipped in a puddle of earth, soot, and cow-manure mixed with water, till it is like paint; this generally keeps grubs, &c., in check, and drought does not affect them so speedily. Let a good breadth of Lettuce and Endive be sown for autumn supply, and plant out those plants which are thinned from the seed-rows. Celery-ridges answer well for these or any other dwarf crops. Lettuce, when wanted crisp and sweet, should be grown on rich, cool, and deep soil, giving abundance of manure-water. Peas, Scarlet-runners, and French Beans should be sown twice during the month. In northern districts an early kind of Pea should be sown late in the month for autumn supply, which should be plentiful till frost puts an end to them. In south of England sowing may be made to the middle of July. Stake Peas and Runners before they get injured with wind. Top Broad Beans when they are high enough, and they will fruit quickly. Mulch all crops which are likely to suffer from drought, which will be the case in very dry weather on poor soils which

Digitized by Google

have not been well trenched: surface-dribblings are useless. The surface-soil kept well loosened with hoe or prong is a good mulching of itself. Get out Celery plants with plenty of manure adhering to their roots, and give them abundance of water; manure-waterings do good service after growth is advanced. Celery is often too much crowded in the ridges, which is against its keeping qualities. We intend to give "Simpson's Celery Collars" a fair trial; they are exceedingly cheap, and must help quickly through with earthing-up. It is well to have the tops of ridges cropped before the Celery is planted, to prevent treading them: a mulching of rotten manure or some earth spread over the roots of Celery plants will do much to save watering. Plant Leeks either in ridges like Celery or in deeply-drawn drills after the soil has been very heavily manured. The "filling-in" after the plants are large enough will do much to blanch them. Spinach may be sown between all winter crops which will be off in time to prevent injury. New Zealand Spinach should be planted or sown where it can be protected in autumn from early frost. Large breadths of Turnips may now be sown for autumn supplies. Laing's Garden Swede, Golden Ball, American Red and White Stone, are some of the best for present sowing. Thinning may be done at two or three different times, especially if vermin are dreaded; this applies especially to Carrots and Onions. Early Horn Carrots may be thinned as required for use. Parsnips should have plenty of room to let in sun and air. Beet may be left from 1 foot to 15 inches apart, according to growths of tops. Thin Parsley, reserving the best curled plants for the crop. Good thinnings may be planted out; a ridge well planted gives supplies during winter when the crop is often destroyed in ordinary borders. Chervil and all sorts of spring-sown Herbs should be thinned. Get ridge-Cucumbers planted out on mounds of manure covered with good earth; a little fresh turfy loam and leaf-mould gives them a good start. Vegetable Marrows may be treated in a similar way, but they require more room to grow. Train out the shoots from under the hand-lights when ready. Tomatoes should now be ready to plant against walls, fences, sloping ridges, &c.; and if trained at full length, only rubbing off the lateral growths, they will bear at every joint and produce very fine fruit: where there is not room for this, stopping must have regular attention: mulching is of great service in dry weather after roots are plentiful. Keep all surfaces free and open by hoe or prong, at same time taking care not to tear up the roots, as is often done among Potatoes. Weeds will struggle for the mastery, but they must be attacked with energy. When there is a dry hot day this is the time to wage war among weeds, and the hoes should be kept going uninterruptedly till every space has been gone over: any raking or levelling can be done afterwards, but much raking in a kitchen-garden is not required, and that should not be done at the expense of other parts of the ground remaining covered with weeds. We would tollerate a clod or a stone any time before even a small weed.

M. T.

FORCING DEPARTMENT.

Pines.—Those plants that started into growth early in the season will be ripe this month. As soon as they show signs of turning yellow at the base of the fruit, gradually decrease the moisture in the air and soil, and give air more freely; but do not by any means resort suddenly to a starving process of ripening. Give as much water as will keep the system of the plant healthy, until the fruit is half coloured, when no more should be given. When the fruit are ripe, they will keep in good condition for weeks if the plants are removed to a cool fruit-room, in which case take off and pot the suckers before storing them thus.

The plants intended to supply ripe fruit in autumn should show fruit this month; and if they are growing in moderate-sized pots in light houses, and rested a little in May, there will not be much difficulty in getting them to start: avoid too strong a bottom-heat—85° is sufficient; and supply them moderately with water, otherwise the chances will be in favour of their growing on instead of fruiting. Smooth Cayennes, and other winter-fruiting sorts that have been grown on freely till this

Digitized by Google

time, should now be kept cooler and drier for a month, with the view of their starting in July for winter supply; avoid, however, that amount of starving which causes the tissues to shrink, but just keep them sufficiently cool and dry to cause them to rest and consolidate their growth, after which more heat and moisture will cause them to start. Keep a moist atmosphere and a high temperature with sun heat where fruit are bloomed and swelling, and sprinkle them overhead at shutting-up time, and do not suffer them to be checked from becoming too dry at the root. Examine all plants in the latter stage, and remove gills from the fruit-stem where these are dry, and reduce the number of suckers to two on each plant. Attend with great care to succession-plants that have been shifted into fruiting-pots this season. The manner in which these are fired, ventilated, and watered, includes nearly the whole process of making really fine plants of them. As little fire-heat as possible should be used. Most climates render the use of fire-heat necessary the whole season, but it should now be at its minimum. Sun-heat should be made the most of by shutting up the pits early in the afternoon, and the fires should just be started in time to put heat enough into the pipes, to prevent the temperature from falling below 75° at 10 P.M. and 70° at 6 A.M. Air should be given early in the morning, and gradually increased until 12, and gradually reduced after 3 o'clock. The surface of the plunging material and paths should be kept damped during bright weather, to prevent aridity of atmosphere, and simply dew the plants themselves overhead at shutting-up time. Water at the root should be attentively applied, sufficiently frequent to just keep the soil moist, but not very wet. Where the bottom-heat is supplied from leaves and tan, see that the material does not shrink from the sides of the pots so as to expose the roots to the air, and make more frequent watering necessary. Do not shade unless when very bright sun succeeds a dull time, and then only very slightly, so as to prevent the leaves from getting much browned; give weak guano-water to all well-rooted Pines in every stage, especially those swelling their fruit.

Vines.—Let Vines, from which the Grapes are all cut, be kept as cool as possible, and give the foliage an occasional syringing, to keep it clean and healthy until it has done its work sufficiently to leave the Vines in good state for another season's crop. Where these have their roots in both inside and outside borders, leave a slight mulching over them to prevent drought from causing the soil to rend and crack. Keep Grapes that are perfectly ripe cool also by leaving air on all night. Do not let these early-forced Vines make fresh lateral growths, but remove at once every attempt at such. Crops now colouring should have more air both at the front and top lights, but do not withdraw moisture suddenly, but by degrees, between the time that colouring begins and is completed. Whenever those Vines that have a good portion of their roots in inside borders show indications of colouring, examine the border; if dry, give it a good watering with tepid water; and if not already mulched, let a thin mulching be applied to prevent evaporation. The same applies to outside borders, should the season be hot and dry. Crops that have stoned and taken the second swelling, should have their borders seen to in the same way. Shut them up early with sun-heat rising to 85° or 90° for a short time, but leave a little air on all night, and start the fires in time to prevent Muscats falling below 75°, and other varieties below 70° as the lowest point by morning. Should red-spider appear, and the water is such that it cannot be used for syringing, hand-sponge the foliage, and coat the pipes with sulphur, and spare no trouble to prevent its gaining a footing. We are certain lack of moisture at the root is one great cause of this pest in hot summers, though some soils and situations are far more favourable to it than others. Crops that are just thinned may be treated as in the case of the stage just referred to. Thin the latest crops more freely than crops that are to be used before winter: they not only hang better when well thinned, but the berries attain a larger size, and there is scarcely any other point that makes up for size of berry in a dish of Grapes; certainly mere size of bunch does not, especially in the hands of a housekeeper or confectioner. Thinning should be proceeded with immediately the berries of free-setting

Digitized by Google

sorts are set, and free from their flowers. In calm warm weather it will be necessary to put on front as well as top air after this season, but avoid hot pipes in conjunction with such ventilation; sprinkle the whole floor of the house several times daily, and leave a little air on at top all night, and increase it gradually in the morning, so as to dry the leaves before the sun gains power. Attend carefully to the tying and regulating of Vines planted in spring, which will now be growing quickly. If not intended to fruit next season, let them cover the whole roof with foliage; but those intended to fruit should not be allowed to make more than two leaves to each lateral. If pot-vines have not been already shifted into their fruiting-pots, lose no time in doing so. For early forcing 11 and 12 inch pots are large enough; and the earlier they can be well ripened the longer they can be rested, and their early forcing is more likely to be successful.

Peaches. — In houses where the fruit are ripe and ripening, keep them dry and well ventilated; and wherever the fruit are shaded with leaves, push them aside, so that the sun can get at them to colour them. In cases where the early crops are all gathered, give the trees a good washing with the engine three or four times weekly, so as to keep the foliage clean and healthy as long as possible; and if the inside border has became dry, give it a good watering. The system of starving any plant into ripeness has a debilitating effect, and should be avoided in the height of summer at any rate. Trees swelling their crops require to be abundantly supplied with moisture both in air and soil; and in the case of old trees bearing heavy crops, water liberally with liquid manure whenever they require water at the root. Syringe every fine afternoon, and shut up with sun-heat to 80°, and do not let the temperature sink below 65° by morning. Tie in the growths, and thin the fruit in late houses. Look out for green-fly, and destroy it immediately it appears. Young trees planted this season will now be growing freely. Pinch shoots that show signs of outstripping the general growth of the tree, and tie the growths carefully in as they grow.

Figs.—Keep ripening fruit dry and exposed to a moderate circulation of air, or flavour will be deficient. As soon as the first crop is all gathered, mulch the border, in the case of old fruitful trees, with dung, and water copiously to encourage the second crop now showing. Syringe freely every fine afternoon, and shut up with a temperature of 80° to 85°. Figs are very fond of moisture and heat when growing and swelling off a crop of fruit. Avoid too heavy a crop, for too heavy crops are exhausting to a tree, and the individual fruits are never so fine in any respect as where crops are more moderate. Those in pots now swelling second crops will require liberal treatment. Top-dress with fresh manure and turfy loam, and water with dung-water; see that they are never allowed to get dry at the root, and keep the air saturated with moisture by frequent sprinklings and the use of the syringe in the afternoon.

Melons.—Fruit that are ripening require to be kept rather dry in order to secure good flavour. Avoid, however, the starving process, which so often puts an end to the plants, and does not by any means improve the fruit. Expose the fruit to as much sun as possible and a free circulation of air.

Sprinkle advancing crops on fine afternoons, and if grown on trellis-work near the glass, with hot water for heating the bed of soil, see that the border is kept steadily in a medium state of moisture. Mulch the surface of the bed with short dung to prevent evaporation and the necessity of frequent watering, which is undesirable. Give sufficient to thoroughly moisten the soil when it is applied. Stop the lateral growths of later crops one joint beyond the fruit, and keep them dry till the fruit is all set, when moisture may be resumed. Those growing on dung-beds that have extended their growths to near the sides of the frame should be stopped, when they will soon produce fruit-bearing laterals, which in their turn stop one joint beyond the fruit, as recommended for those in trellises. Now is a good time to plant out for August supply. For bearing in the heat of the season the soil used should be a heavy loam, which, if not attainable, imitate as much as possible by making the lighter soil firm; but leave it rather rough on the surface,

Digitized by Google

or it will not take in water well. Sow at the beginning and middle of the month for later crops.

Cucumbers.—Plant out a quantity of these, when the demand is great, in cold frames, with a foot of half-rotten stable-litter and leaves underneath the soil. This applies to England more than to Scotland, as Cucumbers in cold frames in Scotland are seldom a satisfactory crop. Top-dress those that have been in bearing since early spring, and water occasionally with manure-water. These can be kept in bearing for a twelvemonth with careful management. Avoid heavy crops of fruit at any one time, and keep the foliage free from thrips, red-spider, and fly, by the usual remedies. Make use of as little fire-heat as possible in Cucumber-houses, when they can be shut up with a high temperature from sun-heat. For further directions see former Calendars.

Strawberries in Pots.—The crops of these under glass will be drawing near a close. Those that are now ripening will do better in a cold pit with sun-heat without any fire-heat. Standing on shelves in hothouses after the beginning of June, red-spider is a constant pest. Plant out the remainder of the plants, from which the fruit are all gathered, on deeply-wrought and well-manured soil. These bear splendid outdoor crops the following season, and frequently a sprinkling of fruit late in autumn. Immediately runners can be had for layering get the necessary stock for next year's forcing laid, either in light rich soil between the rows, or in 3-inch pots in soil consisting of three parts loam and one part old rotten hot-bed manure. For late forcing they will do to be layered a month hence; but for early forcing it is best to have them ready for their fruiting-pots the first week of July.

See full directions for their culture in our back numbers of the present year.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

A READER, BEVERLEY.—Camellias will do quite well in the pit under your Vines. Put 9 inches of broken bricks or road-metal in the bottom of the pit for drainage, and see that there is a good outlet for the water, so that there cannot be any fear of stagnant water. Over the drainage put a thin turf grassy side downwards, and fill up with turfy and rather light loam, with a barrow-load of half-inch bones to every twenty of loam. If you can get charcoal, put a barrowful of it to every eight of soil, and in the absence of charcoal use old mortar-rubbish or pounded bricks. Plant out your Camellias, and keep the atmosphere moist till they get hold of the soil. But in this respect you will have to be guided by the amount of moisture suitable for the Vines. You can syringe the Camellias overhead at shutting-up time on bright days.

ROBERT CLIFF.—If your wall is *much* shaded, we would not recommend you to plant a Jargonelle Pear. The Plum you name would be more likely to succeed, and Currants would do very well—all other things being equal.

T. W. B.—We quite agree with you, but, strangely enough, gardeners, though continually complaining of such usage, seem to kiss the rod that has so long and so constantly been applied to their backs.

A SUBSCRIBER.—The warty-like excrescences on the under sides of your Vine-leaves are produced by an excess of moisture in the atmosphere and too little

Digitized by Google

air. Raise your temperature to 70° at night, decrease your moisture, and increase the amount of air given, and it will not extend; but it cannot now be made to disappear where it has already been produced.

B. B.—Rhododendrons can be moved now successfully, provided it can be done with good balls, and the plants kept well watered. October and April are, however, better seasons for the operations, especially October.

S. W.—When your Cinerarias are done flowering, prepare a piece of rich light soil on a partially-shaded border—say the back or north side of a wall—and keep them well watered in dry weather, and they will make far more and healthier cuttings than when kept in pots. Do not cut them down till they begin to start from the bottom.

T. P.—Make the soil for Alternantheras rich and rather light, and water freely in dry weather. Rather grow the plants on in pots under glass than plant early. The middle of June in Scotland is quite early enough.

C. C. C.—Bottom-heat is a *decided* advantage in the production of very early Grapes, and a lean-to house facing due south is preferable for the same purpose.

R. G., Birkenhead.—The following twenty-four Hollyhocks and Dahlias are all fine exhibition varieties, and will answer your purpose well:—

Beauty, light rosy lilac.
John Stewart, deep rose.
Mrs John Laing, dark rosy lilac.
Wm. Milligan, bright shining crimson.
Brilliant, rosy scarlet.
David Lowe, light crimson.
John Gair, dark rosy peach.
Mrs Boston, delicate rose.
Alex. Henderson, light ruby crimson.
And. Goodfellow, dark crimson.
Archbishop, crimson, shaded with salmon.
Countess of Craven, peach, shaded with rose.
Charles Eyre, very dark crimson.
Fred Chatter, pale yellow.
Her Majesty, white, slightly shaded.
Ida, buff, tinted with rose.
John Tweedie, crimson, rose shaded.
John M'Donald, very dark ruby crimson.
James Whitton, clear rosy salmon.
Lord Stanley, crimson scarlet.
Lord Rokeby, bright magenta.
Mrs P. Bruce, light rosy peach, shaded.
Queen of Yellows, finest yellow.
Octoroon, dark mauve maroon.

Twenty-four Show Dahlias.

Amy Creed, salmon.
Acme of Perfection, golden yellow.
Bishop of Durham, rosy salmon.
Earl of Radnor, plum.
James Cocker, bright orange.
John Harrison, very dark maroon.
Mary Keynes, fawn.
Victory, shaded crimson.
Anne Neville, pure white.
Alice Gair, white picotee edge.
Criterion, rosy lilac.
Lord Derby, rosy crimson.
Memorial, pale rose.
Miss Hanshaw, creamy white.
Miss Turner, white, tipped with rose.
Mrs Boston, deep rosy lilac.
Paradise Williams, beautiful claret.
Paisley Paul, lilac.
Sir E. Smythe, crimson purple.
Sam Naylor, clear buff.
Vice-President, bright orange.
Mrs Dodds, white, shaded with lilac.
Princess of Wales, blush, edged with lilac.
Willie Austin, bright amber.

Twelve fine Fancy Dahlias.

Attraction, white, striped with purple.
Ebor, black, striped with white.
Flossie Williams, purple and crimson.
Flora Wyatt, orange, flaked with red.
John Sealey, lilac, striped with purple.
R. Dean, yellow, flaked with rich crimson.
Hero of York, crimson shaded.
Mrs Reid, crimson striped.
Mdlle. Nilsson, white, tipped with rose.
Octoroon, shaded purple, white stripes.
President Lincoln, buff, striped with orange.
Regalia, striped with crimson.

Digitized by Google

THE

GARDENER.

JULY 1872.

EXCRESCENCES ON VINE-LEAVES.

WE have recently received from several correspondents examples of Vine-leaves, the under surfaces of which are a mass of warty-like excrescences, resembling small green boils or blisters, so thickly clustered together as to completely obliterate the natural surface of the leaves. From others we have had communications describing this disorder, with inquiries as to its cause and cure; and we have recently seen some vineries in which the growth of the Vines has been seriously checked by an aggravated form of the same affection. This disordered state of Vine-leaves, it need scarcely be said, is not by any means of recent date, nor altogether peculiar to this season. At the same time we are not at all surprised at its prevailing to an apparently unusual extent in a season so characterised by sunlessness and wet as this has been up to the middle of June.

The disorder in question we have noticed to have been a complete puzzle to men who have never had an opportunity of practising Vine-culture, nor of testing the causes that have been assigned for those excrescences. At one time it has been assigned to one cause, while at another several causes have been suggested, and remedies proposed which could neither prevent nor remove the evil. Indeed, we are not aware that, after it once appears, it can be removed, although it can be prevented and arrested.

In so aggravated a form of this disorder as prevails in so many cases this year, it has a most injurious effect on the growth of Vines. In fact, we have seen cases where it has completely arrested the growth of especially young Vines. Last year a large closely-glazed house of

Digitized by Google

pot-Pines came under our notice, where the Vines were so much affected that the leaves were not half their natural size—were cup-shaped, and so inveterately affected by this extravasated state of the sap, that every leaf was four times the thickness that is usual in a state of health; and a general stunted growth and yellowish green colour prevailed over the whole house. The cause was not far to seek for: the means of ventilation in an otherwise excellent structure were sadly deficient, and the floors and borders were kept in a constantly saturated condition by frequent sprinklings. So confident are we of the cause of this undesirable disorder in the leaf of the Vine, that we will undertake to produce it in ten or fourteen days in the earlier stages of the Vine's growth, and more especially during a sunless and wet season like the present. The agency we would apply is neither more nor less than a warm atmosphere highly charged with vapour or moisture, in conjunction with a minimum of ventilation. This produces it to a certainty; and in vineries where the ventilation is ample and the atmosphere not over-moist, it will not appear, although in such a season as this is it requires careful management in the points named to prevent its appearance. Ventilation and dryness will not eradicate the disorder once the leaves get into the spongy blistered state; but these conditions will arrest its spread when it has commenced, and prevent it where it has not. Our theory of the matter is, that with a close over-damp atmosphere and a high stimulating temperature surrounding the foliage in the absence of sunshine, and while the roots are active in a moist border, too much sap is sent up, which, in the absence of a corresponding amount of evaporation and other functional operations of the leaf, ruptures the sap channels or veins of the leaf, and as a consequence the crude warty matter is formed in the leaf. This takes place more in the centre of the leaf, and its expansion—except towards the margin—becomes arrested, and it assumes a cup form. In one instance this year we have seen several leaves from the back of which an attempt was made to form small leaflets just where the excrescence was the thickest.

Our present closely-glazed hothouses are more favourable to the production of this disorder than were the older ones, with their many open laps and chinks for the escape of moisture and the ingress of fresh air, and require more than ordinary care in keeping up a constant circulation of fresh dry air to guard against the evil in question, as well as to produce a healthy foliage of that consistency and texture which is indicative of functional regularity. Whenever the first signs of these warts appear, let it be the signal for increased ventilation and decreased atmospheric moisture.

Digitized by Google

NOTES ON HARDY CONIFERS.

ARAUCARIA.

In this genus there are a number of handsome evergreen trees, indigenous to Australia and South America, some of them very lofty and much valued for their timber, which is durable, easily wrought, and capable of receiving a brilliant polish, while the seeds of several of the species supply an important article of food to the inhabitants of their native regions.

With the single exception of *imbricata*, however, they are too tender for the open air in Britain, though several of the species are elegant and effective as conservatory or lofty greenhouse plants, and as such have long been cultivated, their singularly graceful habits of growth and distinct appearance contrasting well with the other occupants of such structures. Among the finest of these are *Excelsa*, known as the Norfolk Island Pine, *Bidwellii*, *Cunninghami*, and *Cookii*, all Australian or South-Sea Island species, with the noble *Brasiliensis* from the mountains to the north of Rio de Janiero, with long lanceolate leaves and plume-like habit of growth, very nearly, but unfortunately not quite, hardy, though in very mild winters and particularly favourable situations it sometimes stands out without injury.

Imbricata—*The Chili Pine*—was introduced into British gardens in 1796 from the Andes of Southern Chili, where, as well as on several of the other high mountain-ranges of that country, it occurs in vast forests at altitudes nearly approaching the snow-line, and attaining heights of from 100 to 150 feet.

The wood is reported as strong, very durable, and beautifully veined when polished, and being easily wrought, is used for a great variety of purposes. The large nut-like seeds which are produced in great abundance are nutritious and palatable when roasted, and are used as food by the Araucanos and the other Indian tribes who inhabit its native mountains, besides forming an important article of commerce, large quantities being regularly sent down to the markets of the various towns.

It forms a neat sharp-pointed conical tree, the main stem perfectly straight, with the stiff horizontal branches arranged round it in regular whorls from the ground upwards, both stem and branches being so densely covered with its strong lancet-like leaves that no animal can climb it or even rub against it without being hurt, hence its native name, *Pehuen* or "Puzzle Monkey."

Few ornamental trees are more extensively grown or more universally popular; and among the many magnificent forms of the Coniferæ which now so richly adorn the parks and pleasure-grounds of our country, it

Digitized by Google

is undoubtedly one of the finest, unique in its massive grandeur and symmetry of form, and producing, wherever introduced, effects which never fail to arrest the attention and call forth the warmest expressions of admiration from all those who are able to appreciate the beautiful and picturesque in trees.

In order to the complete development of its beauties, the Araucaria should be grown as a single specimen, with abundance of space on every side to allow its branches to spread out to their fullest extent. In planting, this should be carefully kept in view, as no plant suffers more readily from confinement, or contact with other trees—the under shoots either turning to the open side or dying off, to the permanent detriment of the superb conical form so characteristic of the tree. There are few trees more striking for long avenues, either when planted in single rows by themselves, or alternately with such of the lighter Conifers, as Cedrus deodara, C. Atlantica, or Abies Albertiana, its dark sombre green and stiff formal habit contrasting admirably with the warmer tints and soft feathery outlines of such species.

It is scarcely necessary to say that it is perfectly hardy in every district in this country, and this even in view of the fact that many fine specimens of all sizes and ages were damaged, and not a few altogether destroyed, by the exceptionally severe winter of 1860-61, when in some places the thermometer fell to 38° below the freezing-point; and when many of the hardiest trees and shrubs were killed to the ground in innumerable instances, the Araucarias passed scatheless through this ordeal; and there can be no doubt that the damage which others sustained was to be attributed more to their being in low-lying damp situations, or to some other circumstances equally unfavourable to the proper ripening of the preceding year's growth, than to any want of hardiness on their part to withstand the frost.

As regards soil, less seems to depend upon its composition than upon its mechanical condition, as fine vigorous specimens are to be found almost everywhere, the failures being for the most part in cold stiff clays, with hard impervious subsoils. Where such is the state of the ground, the soil should be removed to the depth of 3 feet, the bottom well loosened up and drained, and the pit filled up with good rich porous loam or rich compost. Where the situation is very damp, and complete drainage impossible, it is a good plan to raise the plant above the surface, banking the new soil round it. This is resorted to very frequently in such circumstances with complete success, the long under-branches bending down and covering the bank in such a way as to modify what might be considered a somewhat unsightly object.

HUGH FRASER.

Digitized by Google

SOFT-WOODED PLANTS FOR THE CONSERVATORY.

THE many plants which come under the general designation of soft-wooded, as distinguished from such things as Heaths, Primulas, Acrophyllums, though not so choice from a cultural point of view, are still much more showy, more useful for decorative purposes, in making up the mass in the conservatory, for cutting from, more easily grown in quantity with the general rough-and-ready means and ways of a garden. Among the most showy of this comprehensive section are the multitudinous varieties of Pelargoniums, the sameness of which, especially the scarlet and zoned race, is quite nauseating; and we must confess to have become quite bewildered among them. The show varieties are perhaps not so open to this charge, probably from the greater diversity of colouring in the flowers and habit of the plants. They still hold their ground as exhibition and decorative plants, as may be seen at any of the provincial summer shows, though their position has been endangered by the rougher Zonals. These, with the small-flowered fancy varieties, are now coming into the full gush of beauty. February is the best time to propagate these and all Pelargoniums for pot-culture, by inserting strong cuttings singly into small pots and striking them in heat close to the glass, repotting them into rich soil, pinching, and tying them out throughout the following summer, giving them plenty of room, and avoiding drenching rains or cold water—in short, laying the foundation of what is to be expected to be good plants the first year, else it never can be done afterwards. Old plants of all the varieties should be cut back to ripe wood in the autumn, August and September, and, after breaking into growth, shaken out and repotted into smaller pots. Of course, this does not apply to plants required for autumn and winter decoration. The double varieties of Zonals are specially useful for cutting to send away; they should be allowed more freedom of growth than the others, less pinching and cutting. Several plants may therefore be grown in one pot to form a specimen.

Fuchsias can be had any size in full bloom, from neat little plants in 4-inch pots to plants 16 feet high in 14-inch pots, furnished from top to bottom. A lot of the latter we saw last September with feelings of humility. No plant is more handsome than a well-flowered Fuchsia. September is the best time to start with cuttings of soft-growing wood, and keeping them slowly growing all winter in as small pots as possible, repotting them with the lengthening sunlight, encouraging them with mild moist heat as spring advances, such as vineries starting: these, however, soon get too hot for the welfare of the plants, when they

Digitized by Google

must have a house to themselves. Without any extraordinary effort, plants 3 feet every way may be grown the first year. Old plants can be wintered in any shed where frost can just be excluded, or under the greenhouse stages; pruned and started into growth early or late as required, repotted into smaller pots when they have made half an inch of growth. If old plants get leggy and bare, they may be cut over at the surface of the soil, when they will break into strong healthy bunches of growth, and make nice shapely plants for furnishing. New varieties can be readily grown from seed saved from good varieties, and are equally good in the bulk with named sorts, and more robust. A neighbour of ours grows none but his own seedlings, and has great variety in colour and form.

Achimenes is a leading and quick-growing plant for summer decoration, and may be had in bloom from May to December, according as the bulbs are started early or late. The first should be started in February. We sow our bulbs thinly in boxes in a Cucumber-house or propagating-pit, and when they have grown about an inch, transplant into pans or pots. To suit various purposes, turfy peat and rotten horse-dung are a good compost for them, with plenty of sand. The Achimenes is a gross feeder, and should be ever moist and shaded from the direct sun. Drafts and drought make miserable objects of them. The plants should be sticked before they are at all top-heavy: dried willows or hazel twigs make very good stakes for them. The old small-flowering Coccinea or Meteor makes an excellent plant for late flowering, and lasts a long time in bloom in the moist days of autumn and early winter.

Gloxinias, though not so showy as the last, are equally useful in their way. They may be grown on together: the bulbs of both should be kept dry, and in a temperature not below 50° in winter. Gloxinias are easily raised in variety from seed, and will bloom the first season, but for early flowers old bulbs must of course be used. Moisture and shade are their chief wants while growing; the syringe should never touch them. An early Peach-house suits them as well as the stove while the Peaches are in a progressive state, but the best place to grow them is in a moist pit by themselves. Gloxinias will last for months in the conservatory if away from drafts.

Balsams, if of a very good strain, are no mean objects for the conservatory when liberally grown—that is, with rich soil, plenty of room near the glass. A large airy frame is the best place for them, where there is a slight bottom-heat. About the south of England they flower grandly, and make fine plants bedded out. It appears to us labour misapplied to stake and tie the Balsam; the habit of the plant

Digitized by Google

seems to protest against tying out. Large pots should be avoided, but liquid manure should be liberally supplied.

Petunias, single and double, are very attractive and showy in light airy houses. The double ones are best grown annually from cuttings struck in spring from young wood. Three or four plants may be grown in one pot in order to quickly make a specimen. They must be grown near the glass, in very rich soil. If allowed to get drawn or wiry, they are ruined as sightly plants: they must be pinched until the foundation is laid for good plants, staked and attended to in tying as they grow. They are easily broken by reason of the sticky nature of the foliage if they get entangled. They make handsome plants for vases.

The single sorts we like to grow from seed of a good strain, as the variety is much greater, and they are more easily grown than from cuttings. Petunias are particularly plants for hot seasons and situations; they are grand in hot dry Continental parts.

These are some of the subjects which form the "ruck" of plants in the conservatory in summer. There are some stove things which may with safety be classed as soft-wooded, though not generally so—for instance, Allamanda Hendersonii, which is simple to grow, and will flower in any sized pot from a 4-inch upwards; indeed, it only wants to be kept growing to flower. Old plants should be cut well into the ripe wood in spring; if too large, partially shook out and repotted, and receive ordinary stove treatment.

Clerodendron Balfourii is an equally accommodating plant, and will also flower at any size with much the same treatment. Both should be wintered rather dry, but not in too low a temperature.

Bougainvillea glabra may be classed under the same section. It is as simply grown as a Fuchsia, with the benefit of a few degrees more heat. It may be wintered along with the Fuchsias; started with them, with the same certainty of flowering in small or large pots.

Clerodendron Kempferii is a grand old soft-wooded stove-plant which should be grown in quantity; will flower in small pots or large, but makes grand foliage and flower-spikes with liberal culture: it tells well in the conservatory when in bloom. Though stove-plants, these all do well in the conservatory in summer months, introduced when about to come into flower.

Anthurium Scherzerianum will yet be grown by the dozen for general decoration. It is less troublesome to grow than many more common things. The small variety is perhaps the most useful for this purpose, as it flowers more profusely; the other makes the better exhibition plant. A line of this mixed with Ferns of its own height looks exceedingly chaste. THE SQUIRE'S GARDENER.

Digitized by Google

JUDGING AT EXHIBITIONS.

THAT judges, as a rule, discharge their duties conscientiously at our horticultural exhibitions, there are few exhibitors, I believe, that doubt; but that their verdicts are very often as far wrong as right, especially in case of fruit and some other things, is equally certain. There are few exhibitors who do not look upon prize-taking as a question of luck as often as otherwise, unless the lines are very broadly drawn. We have been in the habit of attending nearly all the great shows in England for six or seven years back, not always as an exhibitor, and this is our experience. The want of some common and recognised standard in judging operates very injuriously against exhibitors; and there is often a chance of their being made the victims of ignorance, for the judges are not always well chosen, nor chosen for their work.

It is not so long since a varied and extensive assortment of fruit was adjudicated upon by a person whose whole life had been almost wholly devoted to a perfectly opposite branch of horticulture, and such instances are common. The vagaries of judges are, as might be expected, a prolific source of comment at every exhibition. Old stagers come to know the weak points of the different parties, and it is undoubtedly an immense advantage to the exhibitor when he knows beforehand who is going to tackle his collection. Well he knows from bitter experience that A. will disqualify the whole concern if there is the slightest suspicion of greenness about a single Nectarine or a bunch of Grapes. "All fruit must be ripe and fit for the table," is A.'s text, and he points triumphantly to this clause in the schedule if you venture to remonstrate,—which, by the way, is never advisable. On the other hand, he is equally alive to the fact that with B. a big Pine or two will throw all other defects into the shade. B., indeed, is partial to big things in general, and not to a shade in the question of finish. "Large, fine fruit, the whole of it." "Not ripe! Well, perhaps not exactly, but big, big. Can't get over *that;* would have been ripe in time. Schedule! pooh! I never mind that; it's left to the judges." And so, if B. happens to be a strong-willed individual, it is generally left to *him* entirely, and "size" has it. But when A. and B. are about equally self-opinionated, they don't decide the matter at all themselves, but call in an umpire to relieve them of the responsibility and save their dignity; so C., who is similarly engaged among the herbaceous section, possibly, in the next tent, is called upon, and he decides the fate of the exhibitors. With a dignity and mien worthy of a juror on the "Alabama question," he first takes a "swatch" of all the collections of fruit, it may be, by way of getting an impression. Then he surveys each separately. First he looks at it from one end; shakes his head; goes to the other end; gives another shake; comes to the front; takes a vertical view; bobs his nose in among the Peaches; sniffs the Melons in a sagacious way; and then he stands up, shoves his hands deep into his pockets in a profoundly meditative manner, and whistles a stave of "Pop goes the Weasel" in a suspiciously low key, while he takes another turn along the table. Eventually he decides, observing, "That's *it*, gentlemen; I don't think you can mend *that*." A. and B. do not try to "mend" it, of course, and the exhibitor's doom is written for good or evil. The next party upon the scene is the exhibitor. He is never very far off when the gates are opened, by the by, though he is by no means anxious about the result—not he; he will even traverse the whole circuit of the exhibition in a defiant way rather than commit himself to an undignified race to the fruit-table; but he does get there at last, "just to see how things stand," and how, too, his days and nights of weary labour have been rewarded. If

Digitized by Google

you meet him shortly after, he wears his fate upon his face, and rather avoids the society of his opponents; but later in the day the group may be found "liquoring up" together, and all severally content, or professing to be, and hoping for a change of luck next time.

To return to the main subject, however, we shall cite an instance or two of what we cannot otherwise characterise than bad judging. Some time ago, at one of the largest exhibitions in the country, A., B., and C. staged collections of fruit each, and each also staged single dishes, the same as those in their collection. A. was first in nearly all the single dishes, but was placed third in the collections, though every dish in his collection was as good as his single dishes. The decision attracted a good deal of attention, and was freely criticised. The judges were young, and unknown even to local fame. The same exhibitors showed collections and single dishes at another exhibition, about a week after: in some cases the identical fruit was shown, and A. again led off in the single dishes, and was also deservedly placed first in the collections. In this case one of the judges at least was a well-known and experienced fruit-grower. Again, in another instance, a collection of Pine-apples were exhibited: one lot was ripe and beautifully finished, the other lot was not so, by any means; but they had slightly the advantage in weight, and they were awarded the first prize. Ten days after, or so, the identical Pines were opposed to each other at another show, and the verdict was completely reversed—the ripe Pines being placed first, and the others second. We could multiply instances *ad infinitum*, but these are sufficient to show the chances exhibitors risk, from ignorance on one hand, and the want of some common standard of merit on the other for the judges to go by in every case. HORTUS.

HINTS FOR AMATEURS.—JULY.

IT is to be hoped that fruits will have set freely, and require thinning. This, however, must be done cautiously, as much of it may turn yellow and drop off. We never had a better prospect for Apples, Plums, and Cherries. Pears are offering fair, Apricots are thin. If fine flavour and high colour are desirable, the fruit should have free exposure to sun and air, retaining enough of wood only for next year's use. Regulating the trees and bushes may be done now with every advantage. To get wall-trees well prepared for next year's work, they should have their shoots tied in neatly, avoiding crowding. Syringe with force among leaves where insects have taken up their quarters. Wetting ripe fruit should be avoided if possible. Nets (hexagon is excellent to keep out wasps and flies) may be placed over ripe fruits to preserve them from birds. Gather fruits when dry. Stop figs if they are not making short stout wood; keep the wood thin; crowding gives useless fruit, and often is the cause of the miserable crops met with. We can endorse all the practical remarks given in last month's 'Gardener' by "J. G." In flower gardens and borders "bedding" plants will now be

Digitized by Google

starting into free growth. Neatness and order will require a large share of attention. Frequent stirring with the hoe, and pegging out to fill the beds, picking off dead leaves and discoloured petals, keeping clear of permanent edgings and uniformity in height, are some of the items which good keeping is made up of. Border plants, such as Phloxes, Delphiniums, Dahlias, and Hollyhocks, should be staked before wind has full power over them. Tying them up like brooms is to be avoided. Give manure-water if growth is at all weakly, or if the soil is poor and sandy. Roses will now be in gay attire; every attention should be given to keep the foliage clean and healthy. Dipping the tops of shoots in tobacco-water will destroy fly and save the flowers; clean water well directed with the garden engine will dash insects off. Plenty of manure-water at the root is of great service in prolonging the blooming period. Look sharply after suckers coming up from the stocks, and take off decaying flowers. When Rose petals are to be dried for scent, they should be taken off when quite dry and ready to drop.

The budding of Roses may be performed without delay. Carnations, Picotees, and Cloves may be layered; cuttings taken off carefully root freely in sandy soil under the shade of a wall or fence, and over a mild hotbed, covering the cuttings with handlights or a frame. Layering is taking all the leaves clean off below the third joint, about the third of an inch below the unstripped joint. Draw the knife upwards, and slanting as if the shoot was to be cut off, but after passing through the joint stop in time not to sever the shoot from the plant. Have some light sandy soil ready to peg the layer into; keep the top erect, and peg at the cut to keep the shoot in its place; water the soil, and the work is done. Propagate any choice flowering-plant growing in the beds or borders to get up stock to stand the winter. Chrysanthemums must not suffer for want of water; they will now fill their pots quickly with roots; and if they are allowed to suffer for want of moisture, miserable foliage and worthless flowers will be the result. Plants plunged in ashes, &c., should not be allowed to become waterlogged, and worms should be kept out. Keep the stock turned round to the sun, except one-sided plants are wished. Water them frequently overhead as well as at the roots, when weather is dry. Greenhouse plants standing out to all weathers must have their drainage kept clear. The plants might be placed on their sides when very heavy rains fall; but lights or canvas covers for this purpose answer best. Prevent them from being blown about by wind—all sides should be equally exposed to sun. Clean surfaces, stirred occasionally, are helps to health. Cut down Pelargoniums which have ripened their wood, and after being a few

Digitized by Google

days kept dry they may be sprinkled and grown on: a frame is better than leaving them out in the open ground, as they can be shut up occasionally to hasten their breaking: when the shoots are an inch long, or less, the plants may be shaken out of the old soil, the roots trimmed in, and potted into smaller pots: others may be stood out in the sun to ripen their wood when past flowering. Keep Cinerarias, Primulas, and Calceolarias growing freely; shade from mid-day sun, and sprinkle them overhead. Greenfly delights to feed among Cinerarias and Calceolarias. If the pots and plants are turned upside down, the under-sides of the leaves may be dusted with tobacco-powder; wetting them first will make the powder stick. Cuttings of them may be taken off and placed singly in small pots of sandy soil, and kept rather close and moist in a frame till they root; never allow them to get pot-bound before the full size of pots is in use, then manure-water may be given. Balsams, Globe Amaranthus, and Cockscombs for late flowering should be kept growing freely: if they should become pot-bound, there growth will soon stop. Those flowering may have plenty of manure-water. Gloxinias and Achimenes may flower in a green-house during the next two months or more. Cold draughts of dry air are very injurious to them. Seed-pods should be picked off all plants, except when seed is to be saved. All plants under glass or otherwise should stand so that light and air may pass freely among them; those flowering should have every bad leaf picked off as they appear. The usual picking off decayed flowers, pot-washing, and surface-stirring are very essential to high keeping. Plants in windows will now require abundance of water and liberal top-dressings. M. T.

MELON CULTURE.

NO. I.

PERSIA is the acknowledged home of the Melon (Cucumis melo), where it has been regarded for ages not as a luxury, but one of the necessaries of life. It is the richest of all soft fleshy fruits. The date of its culture in Europe is so remote that the time of its introduction is not capable of being recorded. The Romans, as far back as the time of Tiberius—who is said to have had a special liking for Melons—cultivated them by means of artifical heat, from which it would appear that forcing was an art not unknown to the Romans. The cultivation of Melons has been general in England since the middle of the sixteenth century. Although many of the varieties now

Digitized by Google

in cultivation are very fine, they are not generally regarded as safe or wholesome fruits to be liberally partaken of in the cold climate of Britain. Many, however, are passionately fond of them, and, to say the least of them, they are an interesting fruit to cultivate, and have a handsome appearance in the dessert. In too many instances, however, quality is sacrificed to external appearance, for often the more common-looking and smaller fruits are much superior in flavour to those that are large and handsome.

The varieties of Melons that have been and are now in cultivation may be said to be almost innumerable. So exceedingly simple and certain—indeed so difficult of prevention where more than one variety are cultivated in the same garden—is their hybridisation, that every season is productive of fresh varieties in the majority of gardens. There are, however, three distinct types, which are known as the scarlet-fleshed, the varieties of which have sprung from the more hardy Cantalope; the green-fleshed, from the Egyptian green-fleshed; and the white-fleshed, from the more tender Persian varieties. The green-fleshed are the least attractive in appearance, but are generally the best flavoured in this country. The scarlets have of late years had some excellent additions to their lists. Some of the white-fleshed are thin-skinned, finely flavoured, and handsome; but to bring them to perfection requires more heat and especially intense sunshine than this country affords. According to the statements of travellers, there are Melons in Bokhara and Turkistan which far surpass any cultivated in this country. But probably the intense sun and aridity of the atmosphere, with the attention paid to supply them liberally with water, may have more to do with their lusciousness and flavour than mere varieties; and they are, besides, more exquisitely relished in these hot dry countries than in this comparatively cold and sunless latitude, where they can only be cultivated under glass, aided with artificial heat both in the soil and air.

The chief improvement which has been effected in Melon culture during this generation may be said to consist in their being more generally cultivated in Melon-houses, trained near the glass on wire trellises; and having the fruit thus raised off the bed and suspended in the air, it is placed in a position more conducive to good flavour than when cultivated on the dung-bed system. And some points at least in their management, such as setting the fruit, are more certain on the trellis system than when the plants are trained on the surface of the soil and unaided by the drier heat of hot-water pipes. And very early and late crops are less precarious and troublesome than when the heat is dependent on fermenting materials alone. Knowing that there

Digitized by Google

are still plenty of gardeners and amateur growers all over the kingdom who have to raise their crops of Melons by means of the old fermenting dung-bed and frames, to make our directions as comprehensive as these circumstances demand, both systems will be treated of. South of the Humber, in England, very little preparation is required to produce a crop of Melons in the hottest months of the year in pits and frames, which in the earlier part of the year are generally used for hardening off flower-garden plants, without the means of applying artificial heat. In the neighbourhood of London we have regularly grown good crops by merely putting about a foot of half-decayed leaves or stable-manure in the frame under the soil. In the north, however, seasons of such sunlight and heat as would enable this to be effected without a little artificial heat do not often occur; and in such localities it is always best to prepare accordingly, and to choose certainly not the most tender and uncertain varieties for summer culture in frames not supplied with a maximum of heat.

Plenty of Melons have, however, been ripened in May by means of hot-beds and common garden frames and pits, but not without much care and labour; and for very early and late crops this old system is not now to be recommended, in the case of any who can devote a few lights of a pit or house heated with hot water to the purpose, but can be successfully, and with comparatively little trouble, adopted for the intermediate crops in the hottest part of the season. But to embrace all classes of growers we will treat of both the dung-bed and the Melon-house systems.

The preparations necessary for constructing a seed-bed for Melons being the very same as for Cucumbers, in connection with which we have detailed them,—knowing that early Cucumbers are more generally cultivated than very early Melons,—we will not now occupy space in repeating the process here, but refer our readers to the chapter on Cucumber Culture. With the same appliances as for Cucumbers the same sort of pits recommended for fruiting Cucumbers in answers for Melons; and when they are fruited on an ordinary hot-bed and frame, the heat is maintained in the same way as recommended in the case of the seed-bed for raising Cucumber plants. In fact, if Melons and Cucumber plants are to be raised at the same time, the same frame answers for both.

Although Melon culture by this means has often been commenced on the 1st of January, and fruit sent to table early in May, it is a task involving the most incessant watchfulness, and is attended with more or less of uncertainty unless the spring be unusually fine. Hence we do not recommend an earlier commencement than the 1st of

Digitized by Google

February, from which time even it is not for a novice to carry out the various steps in the process. Indeed, it can scarcely be considered a judicious direction of means and labour to commence so early without more certain appliances than fermenting material and common frames. However, as the mode of raising and general treatment of Melons started thus early will meet the case of those who do not commence till later in the season, we will suppose, in order to meet all cases, an early start, and treat accordingly.

If possible, choose three or four years old seed of some early good constituted variety, and steep the seeds in water for twelve hours before sowing them. At the same time prepare the required number of 4-inch pots, by placing one crock over the hole in their bottoms, and half-filling them with pure moderately-moist yellow loam, and place them in the seed-frame to warm the soil. Sow three or four seeds in each pot, covering them with a quarter of an inch of the loam, and do not water them for the present. They should be plunged so as to get a bottom-heat of about 85°, and, as directed in the case of Cucumbers, let the pots lean to the south, so that the young plants may get the sun when they peep through the soil. The temperature of the air should range from 72° to 75°. In the case of fermenting beds, the heat has to be chiefly regulated by the amount of covering over the glass, and by air-giving, which latter requires to be watchfully attended to, especially in fitful weather. As soon as the young seedlings come up and expand their seed-lobe, and show which are to be the two healthiest and dwarfest plants, remove the others, and mould up the stems with warm rather dry loam, filling up the pot with two earthings after the plants have grown above the rims of the pots. Very moist soil is apt to cause damping, especially in dull weather, when more vapour of necessity collects in the frame. It is very necessary to leave a little chink of air in the frame all night, especially when mild and damp; but great care is required to prevent gusts of cold air from reaching the plants, and a screen of canvas should be suspended over the opening in cold windy weather. When the heat is more than 75° at uncovering time in the morning, increase the air; but this must not be to such an extent as will prevent an increase of heat *with sun* to 80° or 85° by day, and at covering-up time the amount of covering must be regulated by the temperature of the frame, and the weather. Nothing is so injurious to young Melon plants as an over-close moist atmosphere at night, with too much heat. It draws them up pale and weakly, and renders them less likely to bear exposure to sun by day, which is so desirable, except after a time of sunless weather, when a little shade is often needed on the first sunny day.

Digitized by Google

Do not give any water so long as the soil remains moist, and until it becomes manifest that they are really in need of it; and in watering, do not water the leaves. Generally speaking, the soil remains sufficiently moist till they show their rough leaves without any water, and it is much better that such should be the case. For with short sunless days, water would only serve to weaken them, if it did not cause them to damp off altogether. Besides, in a drier soil they make a more numerous brood of active rootlets.

The application of fresh warm linings, as recommended in the case of Cucumbers, must be provided for by having a heap of fermenting material always ready; and air-giving, to keep the bed sweet and free from steam, must receive extra attention with the application of every fresh lining.

When the first rough leaf is expanded, and a leading shoot is formed, the training of the plants must be determined by their subsequent treatment. If they are to be grown raised on a trellis a little above the soil in a brick pit, as recommended for Cucumbers, their leaders must not be pinched; and of course the same is applicable to those that are to be fruited in more modern Melon-houses; and we may say that it also applies to what we consider the best way of planting and training them in an ordinary dung-frame. The common practice in this latter case is to pinch out the leading shoot as soon as it is formed. This forces the plants to form several growths, which, when they have grown to 5 or 6 inches, and the pots are moderately filled with roots, renders the plants ready for being planted out in the fruiting bed—two in the centre of each light, from which three shoots are trained from each plant; the shoots of one to the back, and those of the other to the front of the frame, one shoot towards each corner, and the other to the middle of the light. These shoots are stopped when within 8 or 10 inches of the side of the frame; and the laterals which they throw out produce the fruit. In this case the plants are twice stopped, and of course twice checked. What we recommend, in preference to this system, is not to stop the plants at all, but to plant them out as soon as their leading shoot is about 6 inches long—one pot with two plants to every 2 feet in length of the fruiting bed, the one plant to be trained due north, and the other south, and pinching off all attempts at lateral growth from the base of the plant at the seed-lobes, but allowing the leader to grow on unstopped till it reaches within 1 foot of the side of the frame, when, if stopped, it will quickly throw out lateral growths with fruit, just the same as in the former case; the difference in favour of the latter way of training being, that the single leader reaches the desired length sooner, and consequently bears stop-

Digitized by Google

ping, and forms fruiting laterals sooner than those plants stopped young, and brought away with three growths. Of course this once-stopping system requires nearly double the number of plants to fill a frame, but in all other respects it is the best for speedy fruiting. These two systems of planting and training must determine whether the plants are to be stopped when young; and to obviate the necessity of referring again particularly to stopping, we will now explain that immediately the female blossoms with the embryo fruit appear, the lateral shoot must be stopped two joints beyond the fruit, after which the blossoms soon expand, and the shoots and leaves rapidly increase in size, and it will be found that there will just be about enough of foliage thus produced to cover the whole bed. All late laterals must afterwards be pinched off, unless some be necessary to cover the surface of the soil, which is desirable; but these should not be left on the fruit-bearing lateral, provided no harm occurs to the main leaves.

THE CULTURE OF AZALEA INDICA.

To make some plants pretty and effective, they require a deal of trimming by skilful hands. Not so the subject of our notes. When well flowered, they are beautiful alike in their natural shaggy roughness, or when dressed into those regular forms which they are generally made to assume.

One hundred and sixty-five years have elapsed, it is said, since this gay genus was first introduced into Europe from the East Indies; and countless must have been the improvements wrought upon the race throughout those years by the untiring efforts of florists and others, before the present high standard of quality in the flowers could be obtained. True, even yet the varied gradation of the scale is exceedingly marked; not less so the countless diversity exhibited in the colours and tints of the several species. Taking these considerations into account, I may venture to remark, that with such an array of "good, bad, and indifferent" to choose from, a host of the "bad" sorts might well be dispensed with, and allow those of superior qualifications to reign in their stead, I think it foolish, when such a superabundance of real quality is at our command, that those should be mixed with comparative trash.

While considering the next part of my subject I shall first endeavour to explain the simplest method of multiplying the Azalea—namely, by

Propagation from Cuttings.—This is very simple indeed when taken in the proper time, and conducted with the proper appliances. When the young points have just reached the extent of their growth, and are beginning to assume a woody character, is the time to commence operations. Those growths will be found clustered around the base of the blossoms, in some instances while the flowers are yet in their perfection, and in other cases after they have withered; but it is of no importance at what stage the flowers are if the growths are of the consistency named. Slip them gently from off the plant with a heel on them, and this without the application of a knife, preferring cuttings about 2½ inches long of stubby build to others that are weak and lanky. While preparing the cuttings, cut away, by means of a sharp knife,

Digitized by Google

the tapering piece of bark from the heel, and when all are ready for insertion, use a compost of equal proportions silver-sand and finely-sifted peat-soil. From the moment the cuttings are detached until they are into the soil, the greatest expedition must be in action to prevent flagging in any degree; and in the preparation of the cutting-pots, abundance of crocks ought to be given—say, fill each pot about half up with them, next cover thinly with moss or fibrous peat, and fill up with the compost; press the whole rather firmly together, and dibble-in the cuttings pretty closely, watering through a fine rose. This accomplished, cover each pot with a bell-glass, and plunge into gentle bottom-heat, where the prevailing atmosphere is moist in a slight degree. Only displace the covers when it is necessary to remove the accumulated moisture inside, and to supply water when required. By this treatment the majority of the cuttings will have attained to plants within a month from the time they were taken from the parent stems. No time should be lost to pot singly as soon as well rooted, after which they ought to be placed and kept in heat again, and encouraged to grow without intermission up to September, when a cooler place may be allotted them, but still under the protection of glass. Of course, larger pots must be given on every occasion of the plants filling those they occupy with roots; and pinching out the points of the too-rampant shoots ought to be seen to in time, by which means the plants will be encouraged to break into more numerous shoots. But before proceeding further, I must again recur to the compost, and remark, that after the first potting the soil used should be of a rougher nature, but without any alteration on the proportions of sand and peat. Moreover, it is important that abundant drainage be secured, and that the soil while potting be bound firmly around the ball. Slack potting is most objectionable to all "hair-rooted" plants. Further, reject all peat of an adhesive quality; such stuff is simply poison, retaining the water given, as it does, until it becomes noxiously polluted, amongst which the tender fibres soon die.

Training.—Under this heading it may be said that no plants are more manageable in the operator's hands than the Azaleas. They may be twisted into any form, at the same time accommodating themselves to the treatment with the greatest facility; so it only remains a question which are the proper forms to adopt. Many would-be critics complain of the forms generally imitated, and designate them "moulded lumps" of red, white (or whatever their colour may be), without a bit of green. Such sentiments will do little to revolutionise a system followed over Europe. Independent of all such "havers," symmetrical outlines that are simple and beautiful will always prove acceptable to cultivated tastes. So I have no other forms to propose than the old globate and pyramidal, along with their respective modifications, such as are commonly seen at exhibitions.

Insects.—Thrip and mealy-bug are the two greatest pests to deal with in those plants. A too dry atmosphere, with neglect of water, will generate the first to perfection, and the opposite suits the "miller"—namely, a close, moist, highly-heated place. I have found nothing better to eradicate both than tepid water, impregnated with soap, forcibly administered by a syringe early in the mornings, and again in the evenings. This must be repeated daily until all are killed.

It is a common practice to give Azaleas a few weeks in heat, to insure well-ripened wood and flower-buds. Now, I am not so sure that artificial heat alone will accomplish the desired end, at least given to the extent many practise. Under this condition there are two dangers to contend with—viz., first, much heat necessitates an equal proportion of water to keep under subjection thrip,

Digitized by Google

and these extra supplies of water have a tendency to excite fresh growth; and the result is, if this state of things be continued too long, good-bye to the prospect of flowers the following spring. Secondly, limit this water for any length of time, and, as I have already said, thrip will appear, which will also prevent the wood from ripening; and this syringe as one may to keep the insect under. The best plan that I can suggest from experience is to let the plants have the required heat, gradually lessening the supply of water, and keeping a sharp look-out for thrip, applying the syringe constantly; and should thrip take possession, rather complete the growth in a cool house, then plunge out the plants in the blaze of the sun without protection from June to September. The only sacrifice occurring through this exposure is the lives of the enemy, and a portion of the foliage sooner than would otherwise be, and the gain—a splendid set of flower-buds.

Wintering the Plants.—At the commencement of September have the plants lifted, pots washed, dead leaves removed, as also weeds, if any. Then choose a light airy house to winter them in. Turn them round now and then, so that an equal amount of sunshine reach all sides of them, and only allow water enough to keep the foliage from flagging, until such time as the flower-buds show an inclination to start into activity, when water ought freely to be given, and a little extra heat if possible, along with weak liquid-manure waterings twice a-week in hot weather, and once a-week in cloudy weather.

In the following list of Azaleas will be found some of the cream of the race:—Dark colours: Correcta, pale-red spotted purple crimson, large full flower, of great substance, a vigorous grower and profuse bloomer. Harry Veitch, enormously large flowers, frilled around the margin, very flat surface, colour bright rose. Rubens, deep red, good substance, and a strong grower. Magnet, rose, nicely-moulded flower. La Superbe, light red, upper petal glossy blush crimson, very excellent. Rio Leopold, rosy crimson, an immense flower and compact grower. William Bull, crimson blush flowers, large and double, very prolific. Elegans superba, rich scarlet crimson, solid and very showy. Holfordis, rose salmon. Sima, double, beautiful and distinct. Duchesse de Nassau, rose purple, fine. Standard of Perfection, bright rose-violet flowers of perfect form, nice. President Clay, salmon flowers, prolific nice dwarf kind. Sir Charles Napier, long pinkish salmon, extra. Stella, magnificent bright orange-scarlet flowers, with blush upper petal. Elegans superba. Light colours:—Flag of Truce, white double, one of the best. Sima duplex, rose pink, double, with carmine spots and stripe. Beauty of Reigate, white flaked crimson, fine. Exquisite, pretty, spotted blush white margin, extra-free flowerer. Magnificent, pure white, of solid cloth, magnificent indeed. Dieudonné Spæ, salmon pink, all the petals beautifully margined white, and the upper ones dotted dark crimson, a grand sort. Madame Ambrose Verschaffelt, soft rose, margined white, neatly frilled, a charmingly cupped flower. Reine de Pays Bas, violet pink, with deep white margin, beautifully dotted with crimson on the upper petals, truly an exquisite variety. Souvenir de L'Exposition Universelle, white with rose stripes, good. Roi de Beauté, rose-margined, white double. Mrs Turner, rose pink margined with white, flowers flat, solid, smooth, and fine. Souvenir du Prince Albert, brilliant rose, with a deep irregular white margin, double, distinct, one of the finest. New varieties:—"Alice, flowers of the brightest rose, suffused with vermilion, double foliage, and habit first-rate. Baronne de Vriere, flowers very large, purest white, fimbriated sparingly, spotted red, extra. Comtesse de Beaufort, extra bright rose, top petals darker. Marquis of Lorne, splendid orange colour, large and superb flower, extra, extra." A. KERR.

Digitized by Google

ANTHURIUM SCHERZERIANUM.

THERE are but few stove-plants that can be said to rival this in brilliancy of colouring when it is successfully grown. It is the only Arad worth cultivating in the stove, so far as floral adornments are concerned, and may now be considered as fairly established in our gardens, where it promises long to hold its own as a favourite with plantsmen, on account of its suitability for exhibition purposes and for home decoration. It has frequently been raised from seed saved in this country, and exists in our gardens under several varieties—which no doubt originated in the seed-pan, and which are more or less distinct from each other, not only in floral excellence, but also in what is scarcely of less importance to the cultivator—namely, constitutional vigour. There is one particularly good variety of this plant in cultivation, having large foliage which droops from the petioles; and this often bears spathes 6 or 7 inches long, and 3 or even 3½ inches broad, and of the most vivid scarlet colour imaginable. To go to the other extreme, there is a poor variety with much smaller foliage, more erect in its habit, which bears small dingy spathes of brick-red colour. I have grown both these varieties side by side and in the same compost; the former grew luxuriantly, while the latter always presented a dried-up, half-starved appearance. Not that this striking constitutional difference is confined to the present plant alone, for we may find the same among Conifers and fruit-trees, to say nothing of the almost Protean characteristics of Cattleyas and other Orchids. This variation of individuals, more especially amongst plants raised from seed, is worth careful attention on the part of the horticulturist, as it affords him the opportunity of employing to advantage his powers of judicious selection; and our collections will be found to improve in their value and interest just in proportion as these powers of selection are employed aright.

Plants which vary so much as the one under consideration should, if possible, be purchased when in flower, since one variety is well nigh worth as many guineas as another is worth shillings, and both take the same time, trouble, and expense in growing; indeed, the difference in these respects in the present instance is decidedly in favour of the best varieties, as before pointed out. All the Anthuriums seem partial to a warm, humid atmosphere, and the present species is no exception to the general rule, since it is perfectly at home in a warm temperature heavily charged with moisture. The temperature need not exceed 75° during summer, except by sun-heat occasionally; while during winter it should not be allowed to descend lower than 55°. As to compost, it does not appear to be very particular. I have tried it in

Digitized by Google

several without its showing any marked difference in either health, vigour, or floral profusion.

A good compost for this plant is lumps of tough fibrous turf—that torn from the face of the rocks in upland pastures, where it is only from one 1 to 3 inches thick, being the best. This may be allowed to form the *pièce de résistance*, adding a little fibrous peat, a few dried horse-droppings, and a little coarse, well-washed river-sand. A few lumps of charcoal and broken crocks may be included, adding a layer of living Sphagnum moss after the operation of potting is concluded. As a matter of course, the pot should be thoroughly well drained, so as to allow the escape of all superfluous moisture. This plant requires an abundant supply of tepid water at its roots whilst growing; and if, as is frequently the case, it throws out roots above the surface of the pot, fresh compost should be added, making it up in the shape of a cone with lumps of turf-peat and living Sphagnum moss. It it not by any means a slow-growing plant when liberally treated, but produces leaves and spathes in rapid succession. It is nothing uncommon for good, well-grown plants to have from 20 to 50 spathes expanded at the same time, forming very striking objects. The spathes are well adapted for cutting, and look well in the flower-vase along with a judicious combination of white flowers and green leaves. I have also seen these bright scarlet spathes used with good effect in ladies' hair; indeed, they are peculiarly becoming, arranged tastefully with bold foliage, amongst the luxuriant raven tresses of a *brunette*. The plant is far from difficult to cultivate satisfactorily; and when we consider that it produces its glowing spathes freely and lasts in beauty so long, we feel surprised it is not even more generally cultivated than is at present the case. F. W. B.

MIMULUS, WHERE TO GROW THEM.

IN the 'Gardener' for May there is a notice by "A. B." of Mimulus having been found growing in a wild state, and the Editor refers to their having been found growing in the Braid Burn. It is well known that Mimulus are half aquatics, and from ignoring this fact in their culture they are seldom met with in that perfection of growth of which they are capable. Some years ago I was much pleased and interested by meeting with a variety of Mimulus growing in a small stream which passed a portion of garden-grounds, where, associated with other plants, they give quite an interesting effect to the quiet nooks of the little stream. Many of the Mimulus were growing in the very middle of the stream, with the water covering the soil in which they were growing, while their branches were floating on the surface of the clear water. We never saw this plant with flowers so pleasing and bright, nor with such healthy effective foliage. On the margin of the stream were growing male and female Pampas Grass, and fine specimens of the Royal and other British Ferns, the whole producing a very pretty effect, and well worthy of imitation where a small stream can be taken advantage of in the same manner. G. DAWSON.

Digitized by Google

THE FUCHSIA.

The Fuchsia is an old and general favourite. Few plants can equal it for profusion of blooming and gracefulness of habit, whether grown in a pot or trained up a rafter or back-wall of the greenhouse, where it flowers profusely, and is almost indispensable when large quantities of cut flowers are in request, as a few sprays around the outsides of the flower-glasses set them off to great advantage, breaking the stiffness of appearance, which should always be avoided as much as possible. To have fine plants we prefer taking our principal batch of cuttings about September for the largest plants, the following season choosing those shoots, if possible, that have no bloom-buds, and placing them in sand and a little leaf-soil under a hand-glass, in gentle heat, and shading from bright sun. In a short time all will be rooted, when each should have a small pot, using rich, free soil, having the pots well drained. Everything should be done to induce the cuttings to root at this time; if allowed to remain dormant, they get checked and stunted, and never afterwards grow freely, as they do if put in a genial hot-bed. When the first potting is over, replace them in a close, warm frame for a short time, sprinkling overhead in bright days, and shading until a start is made, after which every attention should be paid them, as the future success of plants depends greatly on being properly started. If a shelf close to the glass is at command, where a temperature of from 55° to 60° can be maintained throughout the winter, the plants will keep growing a little. This winter growth should be carefully managed; for if not, the plants will get weak and drawn; and when the time comes in spring for them to make a start, their vigour is gone. About November look them all over, giving those a shift into a size larger that would suffer before the following February, replacing them in the same quarters, where they may have the benefit of all the sun possible, attending to them with water, but never allowing the soil to get sour. On bright afternoons dew them over with the syringe, also the paths of the house. Small stakes should be put to each to train the leader up, which ought not to be stopped unless side-shoots are not forming freely, the result of the wood being too hard when the cutting was taken. By the following February many will require larger pots, which should be well drained, laying a little moss over the crooks; then sprinkle a little soot over all, which will keep worms from entering, using good, rich, mellow loam, leaf-soil, with a liberal quantity of old cow-dung put through a half-inch sieve. At this stage, if they could be placed in a peach-house at work, not too far from the glass, where the trees will shade them from the brightest of the sun, they will grow very fast. Con-

Digitized by Google

stant attention will be needed now in watering and pinching to keep the plants in proper shape; re-pot whenever the roots have got all round the sides of the pot. When 11-inch pots are reached, they will be large plants—large enough for the ordinary purposes of decoration. When the last pinching is performed, it should be when every shoot can be pinched at once, so that the plant may be in flower all over at one time. Whenever the roots get to the side of the pots of the last shift, begin to give manure-waterings regularly until flowering is past; also syringe daily up to the time the plants are removed to the greenhouse. When past flowering, let them be well ripened and put away where sharp frost cannot get to them. If brought out and pruned in January, when a vinery is to be started, they will come in very early before their time of flowering the previous year. By striking another lot in February, nice plants can be had in 6 and 8 inch pots, a size which in autumn we find more useful than any.

A. H.—THORESBY.

DWARF PALMS.

IN addition to the appreciated selection of Palms submitted to your readers by your correspondent "F. W. B.," in last month's issue of the 'Gardener,' the following species are distinguished as developing a rare diversity of character, dwarf in growth, and most effective in aspect for all manner of indoor decoration.

Calamus deprespusculis.—A very distinct, compact-growing, elegant species, with dense, spreading, frond-like, beautiful green leaves. Petioles yellow, adorned with dark-brown horny spines. Forming a useful decorative plant when 18 inches high.

C. melanochætes.—Slender stem, 2 feet high, emitting long cord-like runners from the base of the petioles. These are armed with many small hooked spines, which evidently will prove very beneficial in supporting the delicate head of this species, in gaining elevated proportions in its native habitat, Java. Fronds compact, with spreading graceful habit, and of a dark-green colour.

C. pachystemonus.—An effective species, with pinnate, beautiful, shining green leaves. Petioles and stem clothed with a light-coloured hair-like tissue, presenting a striking contrast to the numerous small brown spines.

Cocos Weddeliana stands unrivalled in its general graceful outline, which renders it so desirable for table-decoration. Leaves from 1 to 4 feet, very regularly pinnated. Segments narrow, of a beautiful

Digitized by Google

green, and somewhat pendulous aspect. Petioles slender, with the stem and their base wrapped in a netted fibry substance.

C. Australis stands next to the preceding, with its slender and extremely graceful habit, forming a dense bush of elegant fronds, 18 inches long, drooping over the sides of the pot in the most effective manner. Pinnæ compact, spines few; colour pale green. A desirable plant in every respect, and one admissible in the choicest collection.

C. flexuosa.—Habit somewhat drooping, leaves arranged in acuminated clusters, with small vacuous space between. Leaf-stalks and stem dark in colour, compactly studded with small spines. Very useful where one a little taller in growth than the last two named is required.

Dæmonorops periacanthus.—Robust and massive habit, with graceful, arched, light-green leaves. Stem armed with many stiff spines. Very useful and beautiful decorator.

Livistona rotundifolia is the finest of the genus. Plant 1 foot high, and 2 through. Leaves flabelliform, and nearly round, borne on small foot-stems, deeply braided or plaited, cut round the edges into numerous small segments. Colour rich green. More robust in constitution than any of the preceding. A real gem, and should be in *every* collection.

Martinezia caryotæfolia.—Leaves irregularly arranged along a dark-green petiole, offering striking distinction in the way of contrast in being embellished with long horny jet-black spines 6 inches in length. A curious, beautiful, and effective Palm.

Oncospermum van Houtteanum forms an exceedingly handsome well-furnished little plant when 1 foot high. Small light purple petioles, adorned with small black spines. Leaflets cut into elegant little segments. The whole of an exquisite drooping aspect.

Stevensonia grandifolia, from its expansion of leaf, is not well adapted for table-decoration, but for rich and beautiful coloured foliage it has no equal, which should suffice to secure for it a place in every choice collection. Petioles reddish crimson, extending longitudinally throughout the massive entire leaf. Leaves undulated along their drooping margins, with round spots of pellucid yellow towards their base. To insure full development of this fine species, it should be grown in the warmest end of the stove.

These all require stove treatment, their original headquarters being confined to the torrid zones, where a genial warmth seldom forsakes the atmosphere; their beauty and magnitude greatly diminishing as they approach the intertropical and temperate regions; while Europe, among its indigenous vegetation, only contains a single dwarf and unimposing species—the Chamærops humilis. J. M.

Digitized by Google

NOTES ON BEDDING PLANTS.

By the time this appears in print, it will be again almost time to begin propagating for another season. Such things as Verbenas, Alyssum, and Ageratum will require our first attention.

The Alyssum may at once be put into the boxes or pans in which it is intended to be wintered.

The boxes should be properly drained by placing a flat piece of crock over each hole, then about an inch deep of smaller pieces. Mix up some soil composed of good loam and leaf-mould equal parts, with a good sprinkling of silver or river sand, enough to keep the soil nice and open. Fill the boxes to within an inch of the rim with this, and the remaining inch with sand and a little finely-sifted leaf-mould mixed with it, to prevent it caking together. The cuttings may be now put in at about 2 inches apart, and pressed in firmly with the finger; water through a fine rose, and place them in a cold frame facing the north. Shade with double mats through the day, especially during bright sun; give a slight dewing with a syringe in the evenings of dry days. The mats may be left off at night. After a few days, a little air may be given at night; and when well rooted, shading may be discontinued, and air given more freely.

As soon as cuttings of Verbenas can be obtained, which in most places may be about the middle of the month, they should be put in also. Some put them at once into boxes such as I have described for Alyssum, and so winter them; others use 4-inch and 6-inch pots. Both plans, under certain conditions, do very well. The best Verbenas I have seen were annually raised in the following manner: Take a one-light, two-light, or three-light frame, according to the quantity required; set it on a piece of ground, and facing the north, and in a sheltered position; fill it rather more than half full of partially-rotted leaves trodden down firmly with the feet; then put about an inch or an inch and a half of soil—siftings from the potting-bench will do very well; let this be firmly beaten down with the back of a spade, and made level. Then take two-thirds of sand and one-third of finely-sifted leaf-mould, mix well together, and spread it on about an inch deep; make firm with the spade, give a slight sprinkling with water to make it settle down, and close up the frame, which is now ready for the cuttings. These should be made with a heel, by cutting under a joint with a sharp knife; we prefer the knife to scissors, as the latter bruise the cutting too much. Let the cuttings be put in very firmly, and about one inch apart; water through a fine rose with tepid water; keep the frame close and well shaded through the day; sprinkle slightly with the syringe in the evenings of fine days, and

Digitized by Google

in all respects treat them the same way as above mentioned for Alyssum. When well rooted, have some seed-pans prepared, about 5 inches deep and 10 or 12 inches wide: we prefer the round pans. Crock to about a quarter of their depth. Next prepare the following compost—half good fibry loam well chopped up with the spade, and sifted through an inch sieve, quarter of sifted leaf-mould, and quarter of sifted mushroom-dung, with sufficient sand to keep all open; fill up the pans with this, first putting a little of the rougher soil over the crocks, press it down gently with the fingers, and prick in the rooted cuttings, putting about twenty in a 10-inch pan, water well through a fine rose, and return the pans to a cold frame; stand them on a bed of ashes, or, better still, on an inverted saucer or flower-pot; keep close and shaded until they begin to make fresh roots, when a little air may be given, and increased in quantity as they grow; after a little while shading may be dispensed with, and the lights run off on good days, so as to keep them nice and stubby. Green-fly must be looked after, and the plants fumigated at once should it make an appearance. Verbenas may also be successfully propagated under hand-glasses, placed behind a north wall in soil prepared as above, and in other respects treated as described.

Ageratum Imperial Blue is so easily raised from seed, and comes so nearly true, that it is doubtful whether it would repay one to propagate by cuttings, especially since, owing to its free-flowering qualities, it is not an easy matter to get good cuttings from it. However, where it is desired to be grown by cuttings, the best plan would be to plant out a batch in good rich soil for that purpose, and keep the flowers pinched off. About the end of the month is a good time to put in the cuttings. Unless it be potted singly, it winters best in 8-inch pots, about fifteen plants in a pot. The pots should be drained to one third of their depth, and filled to within an inch of the rim with good rich soil, similar to that mentioned above for Verbenas, and the remaining inch with silver-sand in which to insert the cuttings. They should be placed in a moderately-warm place until they root, and kept shaded slightly. When well rooted, they may be transferred to cold frames for a time, until the cold autumn nights set in, when they may be removed to their winter-quarters.

Layering of Carnations and Picotees may now be proceeded with, and pipings of Pinks put in. These operations are so well understood by most gardeners that it is almost needless to describe them. As there may be some of our readers, however, who have not tried them, I may in a few words describe the method for their benefit. First get some leaf-mould and sand—two-thirds of the former to one-third of the latter—sifted and well mixed together; or old soil in which

Digitized by Google

bedding plants have been wintered will do equally as well, if it has been preserved. Put about two spadefuls round the plant to be layered, forming a little mound. Now take a branch in the left hand, strip off a few of the under leaves, make a longitudinal slit upwards about an inch in length, and half through the stem; bend the branch down, and fasten it so with a hooked peg, making sure to keep the tongue open; proceed in the same way with the others; cover over with the soil firmly, water through a fine rose, and the operation is completed. If weather be dry, they will require an occasional watering. The pipings may be pricked out in a cold frame, or under hand-lights in sandy soil. Take off a cutting, strip off a few under leaves, and cut off under a joint. It sometimes helps the rooting process if a little slit be made in the end of the cutting, and a small bit of leaf inserted edgeways to keep it open. When rooted, they may be pottted up in 3-inch pots. J. G.

VIOLAS FOR SUMMER BEDDING.

VIOLAS or Pansies have for a considerable number of years been recognised as the most attractive plants available for spring bedding, especially in the south. Their claim for summer decoration, when properly treated, is very strong. This does not apply to the greater part of England, nor to the eastern part of Scotland, where the summers are too dry and hot for the constitution of the Pansy. But for all the more moist localities, and where the soil has a good body in it, few plants will sustain so long an array of bloom as the Pansy, when propagated and managed with an especial view to its blooming from early in May till the end of October. And if they were more extensively used it would help to give variety among Pelargoniums, Verbenas, &c. Where the rainfall is great, there is perhaps no plant used for summer bedding that will give more satisfaction. For when a heavy rain batters every petal of the Geranium, Verbena, and Calceolaria beds, the Pansy seems only to be washed the brighter. There is a great deal of stress laid on the value of the numerous fine Pelargoniums as effective flower-garden plants, and perhaps justly so. They are grand things in their way, but at the same time are too much made of for moist cold districts in Scotland, where with a tenth of the trouble the Pansy will give far more bloom for double the time that Pelargoniums do. The most unique piece of flower-gardening, to my mind, I ever saw, had not a single Pelargonium in its make-up, so that in this as in every other "circumstances alter cases."

Digitized by Google

But to the Viola as a summer bedding-plant. The cuttings should be put in the end of October. Cold frames well drained with 6 inches of rich light soil in them answer well for striking in, and those who have not even a frame can manage perfectly well in hand-glasses. Indeed, they will strike without even a hand-glass, but require to be put in earlier in the season. The young shoots which autumn rains generally cause them to make from the centre of the plants strike best. Avoid flowering-stems that are thick and hollow. These never make good plants. If kept close and slightly shaded they soon root, when they should be well aired to keep them stubby and strong. The beds for them should be well manured, and trenched 18 inches deep in winter or early in spring. About the end of March is a good time to plant. They will be gay by the end of May, and continue to bloom after nearly everything else in the flower-garden is past. The fine blue varieties, such as Imperial Blue, are a desirable addition in the way of colour in summer decoration. The Yellows are perhaps the most effective plants of their colour that can be planted: Yellow Prince and Cloth-of-Gold are two grand varieties, and are generally classed with Pansies. Perpetual Yellow among Violas is the most extraordinary plant to flower I ever saw. It blooms in the cutting state in the frame through the winter, and the same plants bloom into the frosts and snows of the following winter. It is the most profuse and hardy that has ever come under my notice. Lutea major is also very good. It is surprising these are not more used in the north for summer beds, seeing they are so hardy, easily managed, and so floriferous. If fewer Pelargoniums were used in many districts, we would get rid of the scarlet fever to some extent, and more variety would be added to our flowers. Last year I saw a flower-garden almost all made up of Pelargoniums, and a more tame and forlorn-looking piece of gardening could scarcely be conceived, with such an utter lack of variety. Grand as the bedding Pelargoniums are, it is a great mistake to lay them on thus thick. Besides, any one who will do justice to self-coloured Pansies and Violas will find in districts that suit them that there is an interest about them as flowers which the never-ending masses of Lobelias and Yellow Calceolarias and Golden Feathers never can have. The last-named plant, from the ease with which it can be reared, I suppose, has jaundiced to a frightful extent some of our flower-gardens.

VIOLA.

Digitized by Google

VISIT TO FORDELL AND DONIBRISTLE.

WHEN we are in the habit of seeing on exhibition-tables fine fruit, well-grown plants, extra well-done cut-flowers, &c., our desires often extend to visiting the grower of them, and place where they are reared. We know it is no uncommon thing to hear it remarked that exhibitors grow to suit the competitions, and not their employers, and that fruit crops are kept light, little attention is given to plants except those for exhibition, and other departments on the place are neglected for a "whim." There is sometimes much truth in this, but not always. Where such practices exist, it cannot be said that there is a great amount of credit due to the cultivator. When plenty and quality go together, and no department suffers at the expense of another, we may safely say the place is under good management.

Among the numerous exhibitors with whom we have had the pleasure of becoming acquainted, none have stood higher in our estimation than the veteran Pine-grower, Mr Foulis of Fordell, near Inverkeithing, Fife.

One would suppose, from his regular attendance at the Edinburgh Horticultural Exhibitions, and his well-known success as a competitor with Pine-Apples, that he was an enthusiast in his profession, and had great resources to grow Pines. The first is certainly true, as there is little going on in the gardening world that he has not at his "finger-ends." But that he has great accommodation for Pine-growing, no one will continue to suppose after passing through the Pine structures at Fordell.

Then there is so much more credit due to Mr Foulis for being able to hold his own among his compeers, and seldom failing in bringing forward creditable fruit throughout the season. It is well known that the greatest art in Pine-growing is to bring forward good regular supplies of fruit. Gluts at one time, and none at others when they are wanted most, bring trouble and vexation to the grower. Under the best management mishaps will occur now and again. One of the greatest Pine-growers in England we have known failed to get his hundreds of fruit ripe between March and June, and when they would turn in from July to September, would say that they were of no more use to him than as many Turnips, and less credit in growing them than good sweet juicy roots during the dog-days.

Mr Foulis remarked to me that he could not understand any one failing in Pine-culture, as they were plants difficult to kill, and would grow with less attention than many other plants.

Heat and moisture judiciously applied during growth, and the same necessaries judiciously withheld during rest, are considered by many

Digitized by Google

to be the most important points in connection with Pine-growing; but everything is simple enough when it is understood, and we may then easily guess how Pine-culture is so simple with Mr Foulis. When we visited Fordell on June 14 there were many fine Pine plants ready to show fruit, a number showing, and others swelling. Young plants were growing vigorously too; some as succession-stock. We saw none in pots; all were planted out. Both systems have their advantages, and as some prefer to adopt both in part, and the results are thoroughly satisfactory, no one has a right to disparage either. One of the most successful growers we ever knew turned out his plants into the plunging material, which was chiefly leaves and a little tan.

The glass structures at Fordell are—two small Pine-stoves, three vineries, an orchard-house, a greenhouse, an Orange-house, and a number of pits and frames for bedding-plants. Bedding is very extensively done—about 60,000 propagated plants are turned out; and in addition to these, succulents too are turned out by the thousand. There is something of almost every branch of gardening represented on this fine old seat—Rose-garden, Fernery—nicely done, and the large collection of Ferns were thriving beautifully at the time of our visit. Outside the finely-walled kitchen-garden there is a nursery in which are many hundreds of the more useful kinds of Coniferæ, also Rhododendrons and other shrubs in great abundance, which I doubt not would be anything but a pleasant sight for an anxious nurseryman. But they are not for sale, as planting is done very extensively at Fordell, as one can soon learn when they travel through the Pinetum of 8 acres, another of 5 acres, and a Cedar-grove of 3 acres, besides spots all through the grounds where rare Coniferæ were doing well. Wellingtonias were growing in great numbers at almost every turn. In the grounds are natural rocks, glens, bridges, waterfalls, and Ferns growing in great variety. The mansion and many other features we had not time to visit. The old Castle, which nestles among fine trees, with a Yew hedge of gigantic proportion, and shrubs, is worthy of a visit itself. One thing here we could almost censure is the crowding of all kinds of bedding-plants round this ancient pile, where there is so much of it elsewhere, and so much in other positions that would appear to advantage beside the Castle. After partaking liberally of Mr Foulis's hospitality (for which his name is so well known in the "Kingdom"), he drove me over to Donibristle, a seat which is well known to be surpassed by few in Scotland for beautiful woods, views, and beautiful drives. However, in a gardening point of view, Donibristle is one of the "has beens," but is likely to again rise to its former fame. We did not find the gardener at home, but in charge of his house were two laughing-faced maidens, who apparently had full liberty to entertain

Digitized by Google

strangers as well as friends, and we received full liberty to roam where we pleased; and space was, like Fordell, wide and interesting. Mr Foulis, having lived as under-gardener at Donibristle nearly half a century ago, was able to speak of the light of other days; and very interesting were the remarks on plantations, &c., which he knew when they were in their youth, and which now are grown to gigantic dimensions. Passing through the grounds, we arrived at the new range of glass, which is a very elegant one, substantial and finely finished. It was erected by Mr Lowe, the well-known horticultural builder in Edinburgh. The houses are all "lean-to's," except a conservatory in the centre of the range, the whole length of which is over 200 feet, width and height about 18 feet respectively. We expect to hear the fame of the produce from this range at a future time. The young Vines and Peaches were planted very recently, and all were starting into free growth. The erection of Pine-stoves and other structures is in contemplation, and ere long Donibristle will be worthy of a noble proprietor like the present representative of the Earls of Moray. There is a large kitchen-garden, which in due time is to have its share of attention.

Returning by the magnificent avenue leading to Aberdour, which is over three miles long, one is struck with the splendid views along the Forth.—Hopetoun woods, Dalmeny Park, and numerous seats along towards Edinburgh, when Auld Reekie comes in grand relief. Inchkeith, Inchcolm, and other rocks, appear with fine effect, the Forth having the appearance of numerous lakes. An idea struck us while passing along this fine avenue (Mr Foulis's sturdy nag doing its best), that iron must be very cheap in the district, as we were every few minutes interrupted by huge iron gates, certainly not ornaments, and apparently of little use. The fine avenue is sadly deformed by them, but they may have their meaning by representing the produce of the district.

At Aberdour there is a grand entrance in course of erection, which will be a fit companion for the one further on the great Perth road.

I parted with Mr Foulis near to Burntisland, feeling highly gratified with my day's work, and certainly indebted for so much kindness; and must ever kindly remember Mr Foulis as a credit to the gardening profession. Fancy a man of his years being forester, bailiff, and overseer!

M. TEMPLE.

PLANTS SUITABLE FOR ROOM-DECORATION.

PERHAPS a few hints on the above subject may help some of your readers in selecting plants for their sitting-rooms. Many people think any kind of plant they may see growing in some plant-stove will grow

Digitized by Google

in their rooms, but in this they are very much mistaken. I grant you there are many of our choice stove-plants that if they are properly hardened off will suit very well for room-decoration; but if the same plants are brought straight out of the stove-heat into a cold room they will droop and die. But there are many plants, both fine-foliaged and flowering, that will remain in health in the sitting-room for a long time. The great thing is never to let them once get dried up, as if you do they will never recover it; and also try and keep them as much out of the way of gas as you can. By avoiding these two things you will be able to keep the same plants in your rooms for months at a time.

For the sitting-room I always place the pots the plants are growing in inside of china ones, and then fill them in with silver-sand or Selaginella denticulata. I do the same with my plants for table-decoration.

In the way of foliage-plants nothing looks better than Agaves, Ananassas, Begonias, Brexias, Cissus, Crotons, Dracænas, Palms, &c. &c.; and for flowering-plants I should recommend such as Acacias, Amaryllis, Azaleas, Camellias, Cyclamen, Cytisus, Fuchsias, Gardenias, Gloxinias, Heaths, Pelargoniums, Poinsettias, and many others too numerous to mention, all of which by a little attention can be kept for weeks or months in rooms.

I am sure any one who once gets into the habit of having flowers in their rooms would not give them up for twice the trouble they really are, and that is very little compared with the pleasure it is to have sweet perfumed flowers in your room of a dark winter day when all without is cold and bleak. A. H.

Upper Norwood.

LOCAL NOTES ON RARE OR UNCOMMON WILD PLANTS.

NO. II.—TWEEDSIDE, FROM KELSO UPWARDS.

This is a most interesting district to others besides the botanist. The ruined abbeys of Kelso, Dryburgh, and Melrose; Roxburgh Castle, Ringley Hall, Littledean Tower, and the remains of other forts and camps,—are especially interesting to the antiquary, while the lovers of fine scenery here find a treat of no ordinary kind. The north side of the river is lined with the mansions of the nobility and gentry embedded in woods, with the classic Tweed winding its way through their spacious parks. On the south side are the highly cultivated farms of Barns, Trows, Newtown, Rutherford, &c.

Leaving Kelso by the handsome bridge over the Tweed, we come to Springwood Park, the well-wooded seat of Sir George H. S. Douglas, where in profusion may be found Arum maculatum, Geranium lucidum (the glossy reddish stems and leaves and trailing habit constitute this a good rock-plant),

Digitized by Google

and the rare Scrophularia vernalis grows abundantly in the shrubberies. Across the Teviot are the grey ruins of Roxburgh Castle, once the strongest fortress on the eastern borders, where in former times kings held their court, and for the possession of which many a sanguinary conflict took place. It was while besieging this castle that James II. was killed by the bursting of a cannon. On the south-west slope Geranium pusilum is plentiful; on the side next Teviot the Black Horehound grows in great abundance. In the river, at its base, Ranunculus fluitans, Potamogeton lucens, and many other aquatic plants. At the "Kae-braes," the Fullers' Teasel is met with occasionally; Myosotis sylvatica and M. collina are abundant; both are common in suitable places all along Tweedside, sylvatica in shady places and collina on dry banks. The woodland form of M. arvensis is also common: this plant is said to be frequently mistaken for M. sylvatica, but when seen together the difference is quite apparent. Here also may be seen the common Privet apparently wild, with some of the branches running down the bank upwards of 20 feet. On the sides of the pond at Barns, the beautiful Lythrum salicaria grows luxuriantly. On the north bank of the Tweed is Floors Castle, the princely residence of the Duke of Roxburgh. Here may be found Eupatorium cannabinum, Samolus Valerandi, Iris fœtidissima, Sparganium simplex, Epipactus latifolia, Plantago media, &c. This Plantago occurs plentifully on haugh-land and roadsides alone the Tweed and its tributaries, up to the base of the Eildon Hills. We now come to Trows Crags, on Makerston estate, where the rocks in the bed of the river rise here and there above the water, between which the river rushes wildly through the narrow channels. Makerston was at one time famed for its herbaceous borders, but change of taste, or rather fashion, has almost exterminated them. Persons of botanical tastes would be attracted by the list of spring-flowering plants grown at Ormiston, and given in the 'Gardener' for June. The garden where these are grown will be a source of much more gratification than those which are planted in the usual way. Large masses of Geraniums, Calceolarias, &c., can never give to the intelligent admirer of the beautiful in nature the lasting and sincere pleasure that a fine collection of herbaceous plants does. Makerston is a grand place for the botanist. On a space about 9 feet square I saw the following plants in flower on May 1st:—Ranunculus auricomus, Chrysosplenium alternifolium and oppositifolium, Stellaria nemorum and Holostea, Arenaria trinerois, Myosotis sylvatica, Endymion nutans, Veronica montana, Adoxa moschatellina, Lychnis diurna, Mercurialis perennio, and Allium ursinum. Scattered about within a short distance are Viola hirta and odorata, Pulmonaria officinalis, Anchusa sempervirens, Verbascum thapsus, Circea lutetiana, Lysimachia nummularia, Tulipa sylvestris, &c. On a trap rock overhanging the river I have found Thalictrum flexuosum, Arabis hirsuta, Trifolium scabrum, T. arvense, Dianthus deltoides, and Asplenium septentrionale. Nearly opposite is a precipitous cliff of old red sandstone on which grows Hieracium murorum and Solidago Virgaurea, and at its base Epilobium tetragonum. At Rutherford I have found Antirrhinum Orontium, Melilotus officinalis and Polypogon monspeliensis (a most beautiful grass). Below Littledean Tower, Cardamine amara abounds.

At Merton, the fine seat of Lord Polwarth, the curious-looking parasite, Lathrea squamaria, grows plentifully on the roots of old trees, apparently preferring Poplars and Willows. Doronicum pardalianches is also plentiful, though it occurs in much greater abundance further up the river at Bemersyde. It smothers almost every plant that comes in its way; the only one I have seen it stopped with was the lesser Periwinkle. Lactuca virosa grows sparingly on

Digitized by Google

the banks. Near the ruins of Dryburgh Abbey, on what would be the site of the garden, "and still where many a garden flower grows wild," the following plants may be found, probably all of them cultivated by the monks, who knew upwards of 300 medicinal plants:—Eranthis hyemalis, Helleborus viridis and fœtidus, Campanula latifolia, Petasites fragrans, Muscari neglectum and botryoides, Solomon's Seal, Lilies, Narcissus, &c. On the north side of the Abbey, Cardamine hirsuta and C. sylvatica grow intermixed, each keeping its distinctive characters, which they are not likely to do if they are varieties of the same, as some botanists have them. Near the chain bridge, the Masterwort, Peucedanum Ostruthium, may be found covering a large space. The Ribes alpinum is plentiful here, also at the "Wallace" statue. Further up is Bemersyde, the ancient seat of the Haigs, concerning whom Thomas the Rhymer wrote—

"Tide, tide, whate'er betide,
There'll aye be Haigs i' Bemersyde."

Here also there has been an old garden, where the same sort of plants have been cultivated as at Dryburgh, Lilium martagon especially growing in great profusion. In front of the "antique mansion" is a fine Spanish Chestnut: at 2 feet from the ground the girth is about 20 feet: at the height of 9 feet, where the limbs begin to spring out, it is a good deal more. A. B.

Kelso.

NOTES ON HARDY PLANTS WITH REMARKABLE LEAVES, ADAPTED TO BEDDING-OUT.

FUNKIA.

Although some of the species of this handsome family rank high among hardy perennials as flowering-plants, none of them are sufficiently enduring or brilliant to be of any use as bedding-plants on account of their flowers. But it is otherwise with respect to their handsome leaves and their style of growth. In these respects they are capable of being turned to excellent account, either in conjunction with brilliant and profuse flowering-plants to supply the deficiency of foliage that too often accompanies extra profusion of flowers among the popular races of summer flower-garden plants, or with those having remarkable or striking leaves, whether tender or hardy, which have in recent years been brought into use in the flower-garden. All the species known have more or less handsome leaves, and some are strikingly so. F. Sieboldiana may be instanced as one of the handsomest of the family. The boldly-formed, deeply-glaucous leaves are unlike anything else among fine-leaved plants at present used in the flower-garden. The style of growth is also neat and compact, just such as would associate well with a large number of the freest-flowering bedding-plants. The mass of the leaves reaches a height of from 9 to 15 inches, according to the quality of the soil in which they are grown. Several other of the Funkias, at present only rarely cultivated, are very ornamental, and even more desirable on account of their handsome leaves than F. Sieboldiana. The variegated forms of *Lancifolia*, *Ovata*, and *Subcordata* have each distinct but strong claims to greater popularity than is at present accorded to them. The variety *albo marginata* is the least valuable of the two known varieties of the first-named species; but the other, named *undulata variegata*, is a distinct and beautiful plant, the leaves broadly lanceolate, about 6 inches long, being undulated on the margin and the surface generally, and clearly variegated with yellow. Of *ovata* there is only one variegated form with which I am acquainted, and it, as well as the variety of *subcordata*, may be considered among the

Digitized by Google

choicest of hardy variegated plants. The leaves in both cases are smaller than those of Sieboldiana, and more pointed, but otherwise similar in outline, and their shining surfaces are beautifully blotched with yellow.

In treating these plants for the purpose of bedding-out, they require to be liberally cultivated. *Sieboldiana* may be divided into single crowns in autumn and potted in rich sandy loam, and the plants may be wintered either in a cold frame or plunged in a bed of ashes or old tan without any other protection. It is not advisable to plant them earlier than May in warm aspects in localities that are subject to late frosts; because, though perfectly hardy and unlikely to suffer permanently from the severest frost we are liable to in spring, yet in such circumstances the tender leaves are sure to be cut more or less. It is better, therefore, to keep them in some cool spot where they may not be excited into very early growth, and in which they may be conveniently sheltered when frost is anticipated. They bear annual lifting quite well: it is indeed necessary that they should be lifted annually, for the purpose of renewing the soil about the roots and thinning out the weak crowns, by which means the finest leaves are obtained. The best time for doing this work on established plants is spring—not later than the end of March. The variegated forms alluded to above require rather more care in their treatment. They should not be divided before spring, being liable to damp during winter when they are done in autumn, especially if the divisions are minute. If a partially-spent hotbed can be spared for them about the middle of March all the better, otherwise a cold frame or even a hand-glass will do. Pot the divisions in small pots in a mixture of sandy loam and peat in nearly equal parts, if the latter is of good quality, but reduce the proportional quantity if otherwise. The temperature should be kept pretty steady and equable by means of mats at night, and by judicious management of the ventilation during the day. When fully established in their pots, treat them in all respects like other hardy bedding-plants, getting them hardened off as early as possible, so that they may be planted out early in May. The caution already given respecting the time of planting applies more strongly to the variegated sorts than to the normal green ones; the latter will early recover from any ordinary injury inflicted by frost, but the former are very slow to assume a lively appearance again.

VERATRUM.

These are not gay-flowering plants, quite the reverse. No one imbued with the popular idea of what is required to constitute a good bedding-plant would expect to find it illustrated in any single species of this family. The popular standard by which bedding-plants are judged would require to be reversed in order to apply to the Veratrums. Their flowers are profuse enough in their way, and are interesting after their kind; but they are destitute of beauty of colour, and consequently unfit to take rank among bedding-plants of the flowering types. Had their handsome spikes of flowers been brilliant in colour instead of dingy, along with their remarkable persistency and profusion, it is more than likely that they would long ago have been among the most popular of flower-garden plants. As it is, however, they have nothing to recommend them for ornamental gardening except their leaves; they are simply foliage plants. In this respect they stand alone among hardy plants, and for that matter among tender plants also; they are a type by themselves, and a handsome one. They have a stately and refined air about them that is capable of being turned to good accout in the flower-garden. The bold elliptical leaves, distinctly plaited and beautifully green, are striking in all stages of their growth, particularly in early summer, when the colour

Digitized by Google

is at its best. The inflorescence of V. nigrum is no match for the lightness and grace of Humea elegans, but in some respects the foliage is superior to that of this favourite plant, which is little less admired for the beauty of its leaves than for the grace of its inflorescence. The leaves of the Veratrum are more massive and distinct in character, and are superior in colour. It might be used in a similar way to the Humea, and for the same purposes—namely, to relieve the monotony of hard flat surfaces and extensive masses of dwarf flowering-plants. Alternated with each other in lines, or in any other manner appropriate to circumstances, Humea and Veratrum would be agreeable contrasts in form; and if associated with dwarf flowering-plants in the manner of centres to large beds, this contrast would be an additional feature of interest. As background plants for wide borders they are very suitable. All this may appear somewhat strange to those whose acquaintance with these hardy plants is confined to the unsatisfactory condition in which they are too often seen in herbaceous borders. They do not often verify all I have said in their favour above when met with in ordinary circumstances, and in their usual associations; but those who know them only thus would, I have no doubt, manifest some surprise on first seeing them under better cultivation, so great is their capacity for improvement when they are encouraged. V. nigrum is the best adapted for producing bold effects in the flower-garden. V. album is the next best; it forms a fine plant, but is less striking than nigrum. V. viride, which is the smallest of the three, is still less striking, and adapted to being used in bedding-out only in the smaller gardens, where something better might perhaps be chosen for the same purpose. These are the best known of the species in cultivation. For the purpose of bedding-out, they require to be well prepared and highly cultivated. They should be grown to single crowns, and potted, after being divided in autumn or early winter, in rich loam, peat, and old manure. They may be stored in cold frames or plunged in the open ground, and protected by a layer of coal-ashes or tan. They should be planted in their permanent quarters not later than the middle of April, and by that time it will be possible to match the plants with each other, because they will be so far advanced in growth as to give indications of their individual vigour. The spots they are to occupy should be well prepared for them. It is essential that they be well fed; and as they have a great capacity for rich food, a good store will not be wasted on them. Trench deep, and enrich with good old manure and fresh turfy loam in equal parts. They are very liable to be injured by drought, and ought to be copiously watered in dry weather. They succeed best in a somewhat shady position. There is a general impression that they are slow to increase. This arises from the circumstance of their being grown in one spot for years on end without being lifted and divided. They do not run out or throw out lateral crowns when so treated freely, but when treated as above directed they will be found to increase as plentifully as may be necessary even in cases of large demand. They may be increased also by cuttings of the spring growth taken in April as early as they begin to unfold their leaves. It is requisite to cut low, taking a portion of the hard base of the crown along with the newly-pushing growth. Plant them in sandy soil in a cold frame, and keep close till they strike root, which they quickly do. It is best to strike them in pots, because they may then be planted out in the open ground after they are rooted without suffering any check. The leaves are very apt to be injured in spring by frost, and by cold cutting winds; it is necessary, therefore, to protect them during the prevalence of either: the shelter afforded by Spruce Fir or other evergreen branches is quite sufficient to ward off injury. W. S.

Digitized by Google

THE EPIPHYLLUM.

AMONGST the various matters that engage the attention of a gardener, that of keeping up a constant supply of flowering-plants for conservatory and indoor decoration during the winter months is one that requires much care and attention. And although there are a number of stove and greenhouse plants that can be had gay during those months, few will produce such a brilliant show with so little trouble as the different varieties of the Epiphyllum. The wonderful and singularly beautiful features of this species of Cacti constitute them conspicuous as well as valuable; their beautiful construction, and—what adds to their qualifications as plants for greenhouse or vase decoration—their long duration of bloom, as well as diversities of shade and distinct rich colours, make them very desirable, coming into flower as they do without forcing or using any unnatural means during the winter months, when gay flowers to cheer us are welcome. And having the additional advantage of continuing a long time in perfection, it forms a valuable plant to those who have to keep a stove or greenhouse gay during the winter months. The simplicity with which it can be grown has brought it within the reach of many. Any one who can give it a stove atmosphere while growing, and a cooler and drier temperature to harden its growth and set its buds, can have it gay for three or four months of the year. The forms that this plant can be made to assume are various—dwarfs on their own roots, standards, pyramids, umbrella-shape, and also the form of a creeper.

When grown as dwarfs on their own roots they are peculiarly adapted for the furnishing of hanging-baskets. If an old and tall plant of the Epiphyllum be placed in the centre of a basket surrounded with some Ferns, or some younger and dwarfer pieces of the Epiphyllum, and some Selaginella denticulata or Panicum variegatum to hang as a fringe, it forms an effective group for the embellishment of the stove or conservatory.

When grown in the form of pyramids, standards, or umbrella-shape, they require to be grafted; and indeed, except when used for basket-work, they always succeed best and show to the greatest advantage when grafted on some tall-growing Cacti. When grown on their own roots they acquire a squatty habit, and hide the beauty of their pendent blossoms in their tangled foliage. Grafting at once raises them to a higher level, and allows the flowers to hang in their natural way, and to display their peculiar beauty to the best advantage. The ease with which they will take on any of the Cactus species is also in favour of grafting. Cactus speciosissimus forms an excellent stock on which to graft, as it is of strong growth and long duration, and is well adapted for carrying the weight of the Epiphyllum. The operation of grafting is very simple—all that is required being a good sharp knife and some pieces of the Epiphyllum. If for a pyramid, begin at the bottom of the stock by making a cut half through it, into which is inserted a piece of the Epiphyllum cut at the end into the shape of a wedge. The wound is then bound together with a piece of matting; or, better still, it may be pinned together with one of the spines that grow on the Palm Dæmonorops Melanochœtes, to keep the scion in its place. Work in this manner round the stock, using smaller and shorter pieces at every stage till the top is reached, where a piece is inserted.

When required in the form of umbrellas, the top of the stock should be cut square and a piece cut out of it in the form of a wedge, into which is inserted two pieces of the Epiphyllum, which may be kept in their places by one of the spines, as recommended for the pyramid. In a humid-growing atmosphere,

Digitized by Google

and shaded from the sun, the scions will take in a very short time. As soon as they have got sufficient hold to enable them to draw nourishment from the stock, they should be placed in a stove atmosphere to make their growth, after which remove them to a cooler and drier temperature to harden, and finally expose them to the full blaze of the sun to induce them to set their buds. They will begin to bloom in the month of November, and by removing a few at a time into a warmer house, the blooming season may be prolonged till the month of February. During their growing season they will require a plentiful supply of water. While coming into flower, one or two waterings with manure-water will assist the blooming; and they should now be watered more sparingly, for if the soil gets over-wet and sour, the flowers will last only for a very short time. During their dormant months very few waterings will be necessary. The soil that best suits the Epiphyllum is a good fibry loam, some lime-rubbish, and a few half-inch bones and a little cow-dung. The pots in which they are grown should be well drained; this is essential, as the plants, although, when growing, needing to be liberally watered, require that the water should percolate freely through the soil. Do not over-pot, as they will flower best when they get pot-bound. When grown as described above, the Epiphyllum forms quite a novel plant for dinner-table or vase decoration; and the usage to which many plants succumb when going through this ordeal it seems to stand with impunity. If a plant trained in the form of a pyramid or umbrella be placed in the centre of a vase surrounded with some dwarf plants of Bouvardia Hogarth, with a few plants of the variegated Panicum to hang as a fringe, it forms an effective group for the decoration of the drawing-room; and what adds to the value of this group is, that it will continue in perfection for several weeks.

To any one who has seen the beauty of this plant when grown in the form of a pyramid or umbrella, or any of the forms that it can be made to assume, will at once have some idea what it is like when used as a creeper. When seen with one or two hundred of its beautiful pink-and-white wax-like flowers hanging like diamonds from the tips of its leaves suspended from the roof of a house, it has a fine and novel appearance. And as it can be had for very little trouble, it is well worth having a rafter or trellis-work assigned to it. It also forms a very clean creeper—that is, it is not so subject to the attacks of aphides, which cause so much trouble, and often a great amount of injury in our plant-houses.

When used as a creeper, the Pereskia forms an excellent stock on which to graft, on account of the ease and freedom with which the Epiphyllum will take on it. This stock is by no means difficult to grow. Cuttings of it may be put in during the spring; and if they receive the treatment generally given to cuttings, they will soon take root. When rooted, pot them off singly into 3-inch pots and keep them in a stove temperature, where they will grow very fast, and will soon fill their pots with roots. As the plants grow, they must be shifted into larger pots, using the soil, which should be composed of a fibry loam, some cow-dung, some lime-rubbish, and some half-inch bones, a little coarser at each successive shift.

Give abundant drainage, as the plants when growing will require a liberal supply of water at the root, which must be allowed to percolate freely through the soil.

March and April are the best months to begin the grafting. This operation can, however, be performed at almost any season of the year with equal success. The grafting operation is as easily performed with this plant when required for a climber, as it is when training them for pyramids or standards. Cover the

Digitized by Google

Pereskia from top to bottom, at a distance of about 6 inches, with pieces of the Epiphyllum, which may be kept in their places by one of the spines that grow on the stock. Give them the same treatment as recommended for the pyramids, and, under such favourable circumstances, nothing can excel the elegant beauty of this plant when covering the rafters of an intermediate house.

HEROS.

A FEW NOTES ON THE FLOWERING OF CINERARIAS.

AMONGST the many gay inmates of the conservatory in the spring months, few plants are to our mind more attractive than the Cineraria, especially if good varieties be in the owner's possession, although we believe it may have superiors in some respects. It is, however, not our purpose to discuss this point at present, but as we have a few notes jotted down bearing more directly on the flowering of the plants, perhaps they may be useful to some of the numerous readers of the 'Gardener.' With few exceptions, the following has generally been the practice we have seen adopted:—To begin with the propagation—the cuttings or offsets were generally inserted in 2-inch pots, from the middle of June to beginning of July, in sandy loam and leaf-mould, and placed in a cool frame close to the glass, as is usually done. The soil used for potting them in their progressive stages into, say, 6- 8- or 10-inch pots, according to the size of plants desired, was for the most part composed of decomposed cow or pigeon dung, leaf-mould, and turfy loam, two parts of the latter to one of each of the two former. Large specimens are expected, and of course generally secured, as the results of such culture, but they are very often, and especially in low and damp situations, later of coming into flower than the time when they are most appreciated, which is from December till the middle of April. The supply for the first three months of that time is, however, often kept up from seedlings in 5- or 6- inch pots, and the larger plants, to which I am adverting particularly at present, grown on for the spring months. For either of these seasons of flowering, and in situations such as we have named, soils of an open character are, we have found, much more conducive to early and profuse flowering. Here I grow them in a rather light, fibry loam, with a few bones and a sprinkling of charcoal-ashes. When putting in the cuttings last June, it was with some misgivings as to success, having had to adhere to the compost named from sheer necessity; but I am glad to say I was agreeably disappointed, for with the aid of clear manure-water after the buds were set, I was enabled to secure plants of an average size, which presented, with the exception of a straggling variety named Perfection, a perfect sheet of bloom.

D. M.

Digitized by Google

NOTES ON FLOWER-BEDS.

Some time since I wrote an article on the above subject which appeared in the April number of the 'Gardener.' Thinking perhaps some of your readers might like a few hints, or that those who had not planted beds before in this style would like to try the effect of some of those I mentioned, perhaps a few notes on the way I have planted them this season may induce them to try some in the same style next season.

As I said in my former article on this subject, in the centre of the lawn we have a large circular bed. It looked so well last season that I was induced to bed it out in the same form but in a different style—namely, in the form of a cross. The cross is composed of a band of Coleus, three rows deep; right in the centre is a large Fuchsia, Marquis of Bristol; and round this a double ring of Calceolarias: this forms the centre of the cross, the four bands of Coleus branching out from this. It being a circular bed, there are of course four quarters left. Two of these are filled in with Cloth-of-Gold, and the other two with Bronze Pelargoniums, and as an edging I have a row of Echeveria secunda. I have no doubt whatever it will look better this season than it ever has yet.

All round the lawn (in the centre of which is the above-described bed) we have a row of beds, one circular and one oblong, if I may so use the term, in the style of those at the Crystal Palace and Battersea Park, but on a smaller scale. The round beds I have filled with the following Pelargoniums:—Italia Unita, Bronzes, Lady Plymouth, Mrs Pollock, Flower of the Day, &c. The squares with Christine, Amy Hogg, Lord Palmerston, Jeane Sisley, Little David, Sensation, Orange Nosegay, Mrs W. Paul, Glair, &c. As edging to the squares I have Golden Pyrethrum, and round the circulars a band of bright-blue Lobelia; also in each circular bed I have three half-standard yellow Roses put in in the form of a diamond, such as Gloire de Dijon, Celine Forestier, Triomphe de Rennes, &c. The edging of Pyrethrum shows up well against the scarlet and pink, and the bright blue of the Lobelia is a good contrast to the bronze and lighter-coloured foliage in the round beds. The blooms of the foliage Geraniums I always keep picked off.

There are also two heart-shaped beds on the lawn: one of these I have planted as follows—the centre is Christine, round which is a band of Flower of Spring (the blossoms of which I will keep picked off), and outside this a row of Lobelia. The other bed is planted just the same, only Excellent used in place of Christine. Outside of these beds is a ribbon or border about 2 feet 6 inches or 3 feet wide; there is a band of grass left between the heart-shaped bed and the ribbon one of about a foot or so; this ribbon-bed I have planted in the following way—in

Digitized by Google

the centre is a row of Mrs Pollock, Cloth-of-Gold, and Bronzes, planted alternately; right and left of these is a broad band of mixed purple white double Petunias, and outside of these, rows of Pyrethrum.

My ribbon-borders I have planted as follows:—Some of them run along beside the garden-walls, others out in the open. Those beside the walls I have planted thus:—first, the walls are nearly—and will be quite by the end of the season—covered with H. P. Roses; then planted in the borders I have three rows of Standard Roses, full Standards, three-quarter Standards, and half Standards; these I have tied to wires, as I think stakes look so heavy. At each end of the borders, and, if long enough to require it, in the centre, we have stretchers from which are strained wires to which the standards are tied. But to return to the bedding-plants. Having heard a great deal about the new Variegated Potato Golden Gem, I have got some planted as a back row. Of how they will turn out I shall speak again at some future date. Next to them I have a row of Perilla, then a row of Lee's Attraction Pelargonium; next Madame Vaucher, then Christine, next Blue Verbena and Lady Plymouth, and the edging of variegated Arabis. Others I have with, at the back, a row of high-bred Pelargoniums, next Madame Vaucher, then Christine, next a row of variegated Stella, and outside of all a row of variegated Arabis.

Of all my foliage-beds I always keep the blooms picked, as I think if they are left on the effect is quite spoiled. I should advise any of your readers who may not be in the habit of doing so to always have plenty of foliage-beds in their gardens, as, whether they are large or small, they are just as handsome, and they tone down the glare of colours which nowadays people go in so much for, and for my part I am tired of. I grant you there is such a thing as erring on the foliage side, but I think nothing looks better, or tones down the brilliant hues of the other beds, than a few foliage ones judiciously intermixed. Up the back of borders Fuchsias look very handsome, so do Hollyhocks, to come in for autumn flowering; but to show up well and not to crowd in on the other bedding-plants, these will require a large border, but make a wonderful show at the end of the season. A. H.

UPPER NORWOOD.

CULTURE OF THE GYMNOSTACHYS.

THE above beautiful stove foliage-plants being seldom seen at exhibitions, or indeed at well-conducted establishments, in the perfection they might be in, I beg to offer a few remarks as to their culture, feeling certain that if they were well grown they would vie with many of the later introductions of stove foliage-plants. Propagation is effected by cuttings, which strike freely in very fibry peat, with

Digitized by Google

plenty of silver-sand, in a warm close moist pit or frame with bottom-heat, keeping well shaded from sun until growth begins; then gradually remove the shading, but at all times guard against direct sun. I put my cuttings or offsets into 3-inch pots. If an exhibition plant for August or September is the object, the following treatment I have found answer well:—Procure a large clean pot; proceed in the following manner; put large crocks into the pot, covering them with charcoal from ½ to 1 inch in size, then cover all with a thin layer of Sphagnum or moss. There should be 10 inches of space left for soil made up of the following—one-half fresh very fibry peat torn to pieces, one-fourth leaf-mould with a good sprinkling of silver-sand and charcoal broken up from ½ inch to the size of a pea, all mixed up well together, putting the roughest at the bottom, and a dash of silver-sand all over the surface. Turn the young plants into this, keeping the plants and soil rather above the level of the pot; place the plants 4 inches apart round the pot, with two or three in the centre, and give a good watering with tepid water overhead with a fine rose. The best situation for the plants to be grown in is a close moist atmosphere with bottom-heat, and well shaded. It would be folly for any one to attempt to grow them with success without bottom-heat. When established, syringe or water with a rose from three to five times per day overhead. I used to be pestered with woodlice, which made sad havoc with the foliage, until I watered copiously overhead. Although woodlice like a damp situation, nevertheless they don't like to be disturbed with water so often. The varieties I grow are the following: G. Verschaffeltii and G. giganteum, both the same in marking, but the latter is more robust in growth. G. spectabilis is a fine variety, green with white markings; very pretty and free in growth. J. T. Burns.

Middlesboro-on-Tees, Yorkshire.

REVIEWS.

The Ivy: A Monograph, comprising the History, Characteristics, and Affinities of the Plant. By Shirley Hibberd. London: Groombridge & Sons.

Like all Mr Hibberd's books, this is a most interesting and instructive volume. It leaves—one would think—nothing unsaid about the Ivy that can be said, yet it is entirely free of uninteresting, mere bookmaking matter. The author has the rare ability of investing what he has to say on all horticultural subjects with a halo of interest quite peculiar to himself. The book before us gives every proof of being the production of one who has spared no labour, and who has devoted a great amount of time, in making himself thoroughly master of his subject. It is evidently the result of the most painstaking and successful effort of Mr Hibbert in classifying and cultivating in all possible ways the numerous varieties of Ivies of which he treats. He has, to our mind, most successfully and commendably superseded the confusing strings of doggerel names by which the varieties have hitherto been distinguished, and invented

Digitized by Google

for all those worth growing a much more simple, appropriate, and descriptive nomenclature. Perhaps those who plume themselves on severely botanical jargon may scowl at this part of Mr Hibberd's work, but the great bulk of his readers will be thankful to him for it. He treats most pleasingly of the historical and literary associations of the plant, its characteristics, its uses, its cultivation, its species and varieties, and gives descriptive lists and selections suitable for various ways of cultivation. The volume is profusely illustrated with exquisitely-executed coloured plates and woodcuts. Indeed, the volume itself is a work of art, and while calculated to be highly instructive is worthy of a place in the most fashionable drawing-room, and altogether we heartily recommend the volume to our readers.

THE SCIENTIFIC AND PROFITABLE CULTURE OF FRUIT-TREES. From the French of M. Du Breuil. London: Lockwood & Co.

This handbook of fruit-tree cultivation treats in a concise and simple way of the propagation, training, and general management of hardy fruits. It is profusely illustrated with engravings, which make the operations of fruit-tree culture intelligible to the merest novice in the art, for whom it is chiefly intended. While it embodies most of the peculiarities of the French system of training, &c., it is adapted to the wants of the English learner.

POT-BOUND FRUIT-TREES.

THE cultivation of fruit in Orchard-houses has, for the last few years, been under extensive practice; and the Orchard-house is not now confined to the gardens of the nobility only, but also frequently comprises one of the structures in a villa garden. Sometimes the trees are grown in pots, at other times in borders; frequently both systems are adopted. Both may have their respective merits, but upon the whole circumstances have often to do with the choice of the cultivator. If it be unsuitable to make borders, of course pots are the only alternative. Presuming the latter to be the one fixed upon, care should be taken, in the first instance, that the soil used be thoroughly prepared; fresh soil (I mean newly got from the common) should not be used till it is frequently turned and exposed to the influence of the weather, and all vermin expelled. Potting the trees requires to be done judiciously: they ought not by any means to be cramped up into too small pots—such treatment will ultimately be their ruin. For proof of this we may relate what last year came under our experience. A number of Dwarf Cherry Trees were potted in No. 1 size pots a short time before we came here, and placed along the centre of a span-roofed plant-house, the object being, we believe, principally to protect them from the furious gales of the east wind, so disastrous in their effects on vegetation out of doors here. About the end of May we observed the trees were gradually assuming a very undesirable appearance. We soon found red-spider was at work, which was difficult to keep at bay. Four of the trees ultimately succumbed to the results of the potting: on turning out the balls we found the extremities of the roots pointing upwards on the sides of the pots, and of course in a very awkward working position—in fact, useless as nourishing agents. After the trees ripened their fruit and wood, I lost no time in transferring them out of doors to a sheltered border, till suitable convenience for cultivating them as Orchard-house trees was secured. A border would have been made at first for the trees but for the circumstance that the house they occupied is shortly to be taken down. Perhaps these facts as they have happened may guard some one against evils similar to those above mentioned.

ISLAY, 16*th June*. D. M.

Digitized by Google

MADRESFIELD COURT GRAPE.

HAVE any of your readers noticed that the fruit of this Vine has a particular tendency to shanking a few days before it begins to colour? A Vine of it here was so affected last year, but I did not think much of it at the time; but it has occurred this season again, immediately the fruit arrived at the stage referred to, and with greater inveteracy than last season. But perhaps I am not justified in terming the way in which it is affected "shanking," for it begins by the berry becoming as if slightly bruised on one side, and in a few days it becomes black and in a state of decomposition. The bunches near the bottom of the Vine lose only a few berries, while some of those higher up lose a much larger quantity, which much disfigures the bunches. Some may perhaps suppose that this affection may result from a weak or badly-ripened Vine, a shaded house, or close planting; but the Vine in question is a strong well-ripened Vine, not heavily cropped, and in all respects in a favourable position, and growing vigorously in a carefully-made and well-drained border of three years old.

LAMBTON CASTLE GARDENS. JAMES HUNTER.

MUNRO'S RABLY CUCUMBERS.

The above Cucumber might also be added to the list enumerated in the article on their culture in last month's 'Gardener.' It is a wonderfully prolific bearer, of first-rate flavour and good form, grows from 15 inches to 21 inches in length. I think for either summer or winter work it is unsurpassed by any. Market-gardeners and others round about London grow it largely, and I have been told by some of them that they prefer it to most Cucumbers they have grown. I myself have discontinued growing any other variety, as it is preferred to others by my employers. G. S.

THE WEATHER OF 1872.

ON the 11th of June, between 4 and 5 o'clock P.M., one of the most severe thunder and hail storms that could possibly be conceived burst over Keithock Gardens and adjoining policies, carrying utter destruction before it. So fierce was the storm that in less than half an hour the ground was covered with large hailstones like good-sized pebbles, and all re-entrant angles on roofs gushed these hailstones to the ground in barrowfuls, where they lay till mid-day on the 13th, which of itself, at this season, is sufficient to show the intensity of the storm, which passed from north-west to east, and was barely a mile in breadth.

Every class of bedding-plants has suffered to the extent of either their leaves being torn to shreds or knocked entirely off. Dahlias are just leafless stumps. Verbenas, Lobelias, and everything else that was lying close to the ground, is barked as if it had been scraped with a knife.

Vegetables in general have suffered similar destruction; and such tender things as Celery and Spinach are actually knocked to pieces. Fruit-tree leaves are perforated as if done by gun-shot. Cherries, Black Currants, and every other fruit that would knock off, are very much damaged. A. KEMP.

KEITHOCK GARDENS.

Digitized by Google

Gardeners' Wages.—In accordance with a resolution come to at a meeting reported in your valuable and useful magazine, and in my desire to do all in my power to further the interests of my brother gardeners, which have certainly been neglected in the general prosperity among labourers at the present time, I resolved to apply for an increase of wages. Having stated the condition of things in a respectful manner to my employer—John Irving, Esq. of Burnfoot, Ecclefechan—I am glad to say that my wishes were immediately and gladly complied with, and that Mr Irvine has advanced his gardeners' wages from 2s. to 3s. per week. I may also state that he has advanced the wages of all the labourers on his farms 1s. 6d. per week. Let gardeners only do as you have so seasonably directed, and I feel assured that each will have like success.—I am, &c.,

JOHN HASTINGS,
Head-Gardener, Burnfoot.

Obituary.

WE regret exceedingly to have to announce the death of Mr Hector Rose, of the Royal Gardens, Frogmore, which took place on June 5th from inflammation of the lungs. We refrain from entering on a history of our lamented friend's career. He has been taken away in the prime of life, and after only four years' enjoyment of the highest position attainable in British gardening. We have had the best means of knowing that he has acquitted himself in a most satisfactory and creditable manner as gardener to her Majesty, who, on her part, has set a right royal example to her subjects in her solicitude during Mr Rose's illness, she having no less than sent Dr Jenner all the way from Balmoral to attend and do all that could be done for Mr Rose. We have known Mr Rose in various relationships for twenty years, and a more honourable and upright man can scarcely be conceived, and his success as a horticulturist is well known. A deep and widespread sympathy is manifest towards his surviving widow and young family.

Calendar.

KITCHEN-GARDEN.

ALL winter and autumn crops, such as Brussels Sprouts, Kale, Broccoli, Savoys, Cabbage, and Celery, ready for planting, should have attention before they become drawn up weakly. If weather should prove dry, a puddling at the roots, as formerly advised, will keep the plants all right. Those which are established in drills should have a good soaking of water, and the hoe might afterwards be worked among the plants, filling in the drills round their stems, which will act as a good mulching. Wind will have less power in moving them if we consider no further earthing-up necessary. Watering is always an important matter at this season, especially where soils are light and shallow. The subject has been so practically dealt with in the "leader" of last month, that we need not go further into the matter at present. Plant large breadths of Endive and Lettuce on Celery ridges and every available space. Sow more seed for later crops, sheltered if possible, and free from damp, if the plants are to remain where they are sown. Sow plenty of Turnips, such as early White Stone and Yellow Stone, and American Red. As soon as Potatoes and other crops are cleared off, let the soil be prepared and cropped at once. Every space should now be rapidly filled up. Keep ground in reserve for the principal crops which are put in at this season. When the first crop of Strawberries is done with,

Digitized by Google

and is no longer wanted, the ground may be trenched, and it will suit any autumn or winter crop. A little early Cabbage may be sown at the beginning of the month. Rosette Colwort is useful for present sowing. The main sowing for September and October planting may be sown about the middle of the month in Scotland, and three weeks later in England. Moisten the soil well for seeds at this season, and shade from sun with mats or Evergreens till the seedlings are up. Prickly Spinach may be sown on well-trenched ground before the month is out. Keep up sowings of round Spinach among winter or other crops. Another sowing of Peas of an early kind may be sown about the middle of the month. We have sown a month latter in the south of England with good results; but it is only chance-work to sow after June in the north. When Pea tops get high and strong, they may be well topped back. Watering and mulching may require attention. Sow Carrots and Onions for drawing young. Twist the necks of autumn-sown Onions which are forming into bulbs. Sow in the shade Mustard, Cress, and Radishes (red and white Turnip sorts). Keep Gherkins, ridge-Cucumbers, and Vegetable Marrows regularly thinned and topped; mulch and water copiously, and give plenty of space to grow. Tomatoes may be thinned, both branch and leaf. If too many fruit are allowed to set they will not be fine. When the plants are allowed to grow as cordons, rubbing off the laterals, the fruit are fine and abundant. Good soakings of manure-water are necessary. Gather herbs as they become fit, and dry them in a cool and shady position; hang them up in dry quarters to be used as required. Parsley should be thinned, and a quantity of the plants cut down to make fresh growths. Pull up and throw inferior sorts away. Sow more seed, thin and plant earlier sowings. Transplanted Parsley we find stands the winter best. Let every surface among crops have the hoe or prong worked among them reely. If weather should continue wet, weeds will have to be hand-picked, and the ground hoed afterwards.

M. T.

FORCING DEPARTMENT.

Pines.—All Pines that have flowered, and that are in various stages between that and changing colour, should have a thoroughly moist atmosphere kept about them, more by frequent sprinkling of the paths and every vacant space than by syringing overhead. They may, however, be syringed overhead—missing the crowns as much as possible—through a fine rose, three or four times weekly in bright weather, and see that they get no check for lack of water at the root. Any that are required to come to maturity as soon as possible may be forced with a high temperature derived from sun-heat. The thermometer may run to 95° or even 100° for a short time after the house or pit is shut up and damped. In the more southern localities of England little or no fire-heat will be necessary if real summer weather is experienced. But in the case of fruiters, and indeed succession stock also, put a little heat into the pipes should the weather prove dull and wet. See former calendars regarding fruit that are ripe and ripening. Successions that were shifted into their fruiting-pots in spring will now be growing rapidly, and will require great attention in the matter of airing and watering. The practice of allowing the pits to run up to a high temperature, and then to give a maximum amount of air all at once, ought to be avoided. Air should be put on in the morning immediately the thermometer reaches to 80°, and be gradually increased to full air at 12 o'clock, and in the afternoon reduce it in the same way by degrees. In calm sultry weather air liberally, and when dull and more breezy reverse this order, but when gloomy, and at the same time warm days occur, air freely. We are thus minute in the matter of airing, being convinced that in many cases Pines are rendered unfruitful and next to useless by keeping them in too "close" an atmosphere, which produces a mere attenuation of tissue, instead of a robust fruitful growth. Keep the soil moist but not wet, and avoid using the syringe very freely overhead; but keep the surface of the plunging material moist, and endeavour to produce a moist atmosphere without over-syringing the plants. Shut up in time to husband as much heat on fine days as will next to do away with any necessity for fire-heat.

Digitized by Google

When fire-heat is necessary fron ungenial weather, let the heat at 10 or 11 P.M. be about 75°, and allowed to fall to 70° towards morning. Plants of Cayenne, Charlotte Rothschild, and other winter-fruiting sorts that have been kept cooler and rested for the last few weeks, may now have an increased degree of bottom and top heat, and if all is right they will start in time to succeed those that started early last month for autumn supply. The latter when out of bloom should have a moist atmosphere, and never be allowed a check from getting too dry at the root. Water all fruiting and succession plants well established in their pots with weak guano and soot-water alternately. See that no portion of your stock is allowed to suffer from want of timely shifting. Suckers from Early Queens will be ready to pot this month, and should not be put into pots less than 6 or 7 inches at this early season, unless intended to be shifted in autumn again.

Grapes.—Should the weather be hot and dry, see that Grapes swelling off on Vines that have their roots in elevated well-drained borders, be well watered once in 14 days. If a mulching of dung be applied to the border at the same time, it will prevent evaporation and nourish the Vines. When the state of the Vines suggests manure-water, now is the time to apply it. If Vines were thus regularly watered in dry summers, there would be less occasion to combat the inroad of red-spider. Keep the atmosphere of all vineries, where the fruit are not yet colouring, moist, by frequently sprinkling the paths and inside borders. Shut up early with a high temperature from sun-heat, giving a corresponding amount of moisture. In cold localities, fire-heat will still be required to keep the temperature from sinking below 75° at night. Leave a little air in all vineries—especially when colouring commences—at night. We recommend where the Grapes are not colouring to shut up the house closely in the afternoon for a few hours, and then to put a little air in for the night. Keep ripe Grapes as cool and airy as possible; and whenever the fruit is all cut, ply the syringe freely on the foliage—especially if there be any red-spider—in order to keep the foliage healthy to the last. It is very injurious to Vines if the foliage is prematurely injured, and every effort should be made to keep it clean and healthy until natural ripening takes place. Look over late Grapes, and if any of the bunches are too thick of berries, thin them out at once. Bunches intended to hang in good condition till next spring should be thinner in berry and lighter in crop than those intended for using as soon as they are ripe. Where any early vineries have become exhausted, and it is intended to replant them, nearly a season will be gained by making the border at once, and planting spring-struck Vines by the middle of the month, and by allowing and encouraging them to make all the lateral growth possible. By this means they will establish themselves this season, and make fine fruit-bearing canes next year. Young Vines planted last year, and that are intended to fruit next year, should not be allowed to make a rambling lateral growth, but should be prevented from making more than two joints of a lateral at each eye, and be stopped when the main shoot reaches the top of the house. Vines in pots intended to be forced early next year will now be strong, and the rod at the base changing to a brownish hue. Do not let them make any more lateral growth; expose them to as much light as possible, and give a liberal amount of air, so that the ripening process be early in order to give the Vines a long rest before forcing them. Thorough and early ripening is of the first importance in pot-Vines that have to be started the end of October or between that time and Christmas. Give Lady Downes Grapes plenty of air both at top and front of vinery when they are stoning, or the berries will get scalded and be spoilt if the weather be warm.

Peaches.—Continue to syringe freely all trees from which the fruit are gathered, and to keep them as cool as possible; and if the borders are in a dry position, see that they do not become over-dry, so inducing a starved instead of a properly developed and matured state of the wood and buds. All repairs connected with the early houses should now be effected while the lights can be removed rather advantageously to the trees than otherwise. Give ripening fruit abundance of air, and expose them freely to the sun to give them colour. Fruit that

Digitized by Google

have to be packed and sent to a distance should not be allowed to become over-ripe before being gathered. Syringe freely when the fruit are swelling, and otherwise keep up a moist atmosphere, but gradually reduce it as the fruit show signs of changing colour. See that the borders are well mulched and occasionally watered with dung-water, unless it be in the case of young vigorous trees that have a tendency to grow too vigorously. Avoid crowding in too much wood; and let the trees be examined, and if there are superfluous shoots causing a crowding of foliage remove them at once, and stop those shoots that are continuing to grow long and rampant.

Figs.—When the first crop is all gathered and the second swelling off, give abundance of moisture in the atmosphere, and syringe freely at shutting-up time. If the trees are old and fruitful, give a plentiful supply of manure-water, and mulch with rich manure. Do not let the fruit be too numerous, or they will not be fine. Young trees which have a tendency to grow over-luxuriantly should not be fed thus, or they will not be so fruitful next season. When fruit are ripening, cease syringing, and give a free circulation of air, or flavour will be deficient. Figs should never be gathered till they are cracked all round and have juice oozing from them, excepting when they have to be packed and sent to a distance, then it is necessary to their carrying safely to be gathered before being quite ripe.

Melons.—Plant out for late crops by the middle of the month. Melons planted later than the middle of July are seldom much worth. Those now swelling their fruit will require much more water than either earlier or later crops, when the days are not so long nor so bright. Avoid frequent dribblets in watering, but give thorough soakings at intervals when required. If there has not been any manure mixed with the soil, use manure-water, and mulch the surface of the beds in Melon-houses with horse-droppings. We prefer this to putting much manure in the soil, which we think has a tendency to produce a too-gross growth in the early stages. Remove all superfluous growths, and just leave enough foliage to cover the trellis or bed. Syringe every fine afternoon, and shut up early with sun-heat. When the fruit begin to ripen, expose them to light, and give them a free circulation of air. Train, stop, and impregnate advancing crops as directed in former Calendars.

Cucumbers.—Let those which are in full bearing be well supplied with manure-water, and mulch the surface of the borders of those growing on trellis with some manure and loam in equal proportions. Syringe regularly at shutting-up time, and always put a little air for the night a few hours after syringing. Remove all unshapely and superfluous fruit, and impregnate a few for seed. Look over them two or three times weekly and remove all tarnished foliage, pinching the young growths in order to keep an active healthy foliage, without which fine fruit cannot be produced.

Strawberries.—If the necessary number were not layered last month, lose no time in doing so. Shift into their fruiting-pots all those that are well rooted. Put those intended for early forcing into 5-inch, and those for later work into 6-inch pots. Use a rather strong loam, with a little old mushroom-bed dung and some finely-sifted lime-rubbish mixed with it. Place the plants when shifted in a warm sheltered exposure, and stand them in something to prevent worms from getting into the pots. Give them plenty of room, keep them well watered in dry weather, and pinch off every runner as it appears. Water them overhead on the evenings of warm days.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for

Digitized by Google

publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

PELARGONIUM.—Will you have the goodness to let your readers have an article on the "Show Pelargoniums," somewhat similar to that in August 1870, and on the "Fancy Pelargoniums," somewhat similar to that in October 1870? I mean modernised and accurate instructions as to the culture, and the age to which they should be kept, &c. I find great differences of opinion. I have been one of your early subscribers.—H. P. [Will any of our correspondents favour us with their practice?—ED.]

EUCHARIS AMAZONICA.—A constant reader of 'The Gardener' will feel most grateful to F. W. B. if in the next number he will give a few more hints as to the growth of the Eucharis. How many bulbs should be planted in a large flat pan? Will the same bulbs bloom again and again? After making their growth, and being put to rest, are they to remain dry long enough to *lose* their leaves before being started again? The writer has a large pan and pot, with from 12 to 18 bulbs in each. This spring, for the first time, by being placed in strong bottom-heat, they threw up three spikes each. This is so poor a result, compared with F. W. B.'s splendid twenty-two spikes, that "a constant reader" fears there has been mismanagement in their growth. [Will F. W. B. kindly comply?—ED.]

M. J. A.—Viola Cornuta. There is a white variety, and a very fine yellow called Perpetual Yellow, all very useful plants.

Mrs R.—Apply at the 'Journal of Horticulture' office, 171 Fleet Street, London, where a manual on the subject has been published.

T. M. AND OTHER INQUIRERS.—See leading article of our present issue.

S. P.—We do not care if it does, and will abide by what we have advanced against all comers, thinking that what we have said is as much to the interest of employers as of those employed.

W. T.—Shade Pines by all means rather than let them become brown or wiry, but shade just sufficient to effect this. Keep a moist atmosphere until they get inured to full sun.

J. A.—The badly-ripened wood of last season, and the cold spring, are the causes of so much blister or curl in your Peach-trees. Remove the worst of the leaves as they make healthier growth, and syringe with tobacco-water diluted to the colour of ale to destroy green-fly, and dust with sulphur the mildewed parts.

H. B.—12 best show Pansies; Finale, Miss Addison, John Currie, Cherub, George Keith, Purity, Miss Muir, Comus, J. B. Downie, Joseph James, Cupid, Alice Downie.

SUBSCRIBER.—The Tamarind requires hothouse culture. Virginian Creeper will not grow as a bush like some of the varieties of Ivy, but requires support.

A. Y. THOMSON.—Do not cut blooms off later than middle of July.

D. R., LANCASTER.—The cause of the failure is always growing your Pansies on the same piece of ground. The Pansy, above everything, requires a change of soil every season. If you wish them to occupy the same situation, remove the soil say 12 inches in depth, and fill up the beds from a quarter of your garden that has been well manured the year previous, say after a Potato crop. The following show and fancy varieties are really first-rate, and may be depended upon. 12 *Show.*—Ebor, Miss Adamson, Mr Horsburgh, Mabel, J. C. Champion, Mrs Young, Luna, George Keith, Locomotive, George Muirhead, Miss Addison, Miss Ramsay. 12 *Fancy.*—A. Crombie, Agnes Laing, Buttercup, David Syme, Mrs Whitehead, George Vair, Fritz Benary, Miss E. M. Bain Budge, Mrs Haggart, Wm Baird, Mrs R. Dean, Sunrise.

HENRY MASON.—The morsels of plants you have sent are very much bruised. No 1, Centranthus ruber; 2, Hemerocallis flava; 3, Nepeta teucrifolia; 4, Lychnis flosculi flore-pleno.

Digitized by Google

THE

GARDENER.

AUGUST 1872.

EXCESSIVE FLORAL DECORATIONS.

AT one period of the history of the wonderful Roman Empire, the passion for floral decoration became so excessively great that its suppression had to be effected by laws enacted for the purpose. So great was the excess in this direction, that on one occasion Cicero harangued one of his pro-consuls for having travelled over Sicily on a seat of Roses — his person being profusely decorated with flowers, and with a floral crown upon his head. Some of the great dignitaries of state had their apartments and beds literally strewn with a wasteful profusion of flowers; and on the occasion of their great banquets their dining-halls were bedded with flowers several inches deep. It is related that Nero, on the occasion of one of his great banquets, gave thirty thousand pounds for flowers. Flowers in season and out of season were then the passion of the age. This state existed while the science of the vegetable kingdom was being utterly neglected by these extravagant votaries, and was contemporaneous with extravagance and extremes in dress, which had to be suppressed by sumptuary laws. Such a use of flowers as this can scarcely be called by any other name than the mere indulgence of a voluptuary—a use of flowers surely as wide from the purpose for which a munificent Creator intended them as it is possible to conceive; and must be looked upon as a state of mind quite opposed to that which the rational and proper use of flowers is designed to beget and foster.

The benign influence of flowers on humanity is a conviction founded on the very best foundation, and all sympathy should be manifested towards every effort made with the view of bringing the sons of toil and the children of sorrow within the range of such an influence.

Digitized by Google

From the pearly Snowdrop that brings in the modest van of Flora's train, to the Christmas Rose which brings up the rear of the beauteous procession, all are without a doubt designed for a special and beneficent ministry. But we do not find that—Roman fashion—nature ever flings her treasures upon us in wasteful and satiating heaps. They only sparkle here and there—set in nature's quiet and wide expanse of green repose.

It has been the reproach of this country that we have lacked the appreciation and use of flowers, which has been a commendable characteristic of some other countries. This reproach may now be withdrawn, for we have wrought our way up with rapid strides in this phase of civilisation, and the love of flowers has grown into a characteristic of the British nation, beyond what could have been anticipated in so inhospitable a clime. Our fear now is that we are on the eve of crossing the line which separates the tasteful and rational use of flowers from such a state of things as the diseased excess which at one time characterised the Romans. The glaring and too sumptuous waste of flowers which has in many cases outstripped all moderate dimensions in society at the present time, is merging on what may be called the intemperate and depraved use of flowers—most undesirable, from whatever point it is viewed. If we take for example the dinner-table decorations which prevail in too many instances, they cannot be looked upon in any other light than that of excess and waste.

Against a moderate amount of table-decoration carried out with delicacy and taste there can be no objection; on the contrary, a great deal can be said in its favour and praise. But when, as is too often the case, it is made to be the beginning and end of everything on the table—a mere wasteful satiety of flowers, instead of that simplicity which is the very soul of all good taste—it cannot be too severely condemned. We have seen tables where everything on it seemed to be simmering in flowers, leaves, and berries—where plants and flowers have transformed the table into a crowded miniature conservatory, lumpy, clumsy, and coarse. The voices of all true lovers of flowers and plants should be lifted against such a voluptuous use of them. The great evil attendant on such vulgar displays is, that they are too apt to be copied and multiplied by others, just because they are the fashion—as some buy pictures, not because they are truthful reflections of nature, but because they are the production of a certain noted artist.

Neither can there be any objection to the encouragement of competition in this sphere of decoration, as has been recently done in a far more liberal manner than is usually awarded to higher spheres of horticultural science. But it would be well if the conditions laid

Digitized by Google

down in such competitions were such as to reduce the use of flowers, leaves, and fruits to a minimum, instead of running the risk of increasing the evil we are attempting to point out. Perhaps it may appear to some that we are too severe—drawing an exaggerated picture of what may be regarded as a pardonable abuse of what is in principle desirable and commendable. We have not the slightest intention of doing any such thing, but desire only to protest against an abuse which is assuming repulsive dimensions. It is not against the moderate use of flowers and plants on dining-tables that one word can be said; but when we see flower-gardens in miniature made of sand and flowers—lumpy and inelegant; when arches are shot across the table draped with a glowing profusion of heavy flowers and bedizened with corpulent fruits; plants obtruded here and there, and the cloth bespattered all over with leaves and flowers,—and all these too at one and the same time,—it is time that a word should be said at least in favour of a more elegant and simpler state of things, and that a warning should be uttered against running into an extreme which cannot be regarded as aught else than an excess which is totally opposed to all that is elegant and *meaning*.

CROPPING-TIME.

After the beginning of February, gardeners begin to look for and to take advantage of the first opportunities of getting almost all the principal crops into the ground, and notably Onions, Potatoes, and Peas, &c. We look more to present opportunities, and the condition of the soil at the time of sowing, than any after consequences; and to tell the truth, it is difficult to resist the temptation to set to work when the weather is dry, and the soil just in that mellow powdery state so suitable for the reception of the seeds and cropping operations generally. It may be doubted, however, if in always taking the first we are not often taking the worst chances, and defeating, in our anxiety to get on, our best intentions. I think it may be laid down as a rule founded upon general experience, that the plant which makes a luxuriant and uninterrupted growth from the time it is put into the ground, always gives the best yield. Speaking in a gardening sense, this in fact is self-evident. Hence, therefore, it follows that a crop, of Onions for instance, that is just got through the ground by the end of a favourable February perhaps, and is then arrested by frost and snow for four or five weeks, had better been sown later—better at least been under the ground. It is invariably those crops that remain longest in the rudimentary stages of growth, that suffer worst from enemies of all kinds. The Onion and the

Digitized by Google

Carrot suffer from grub, Peas get devoured by slugs, Potatoes take the "curl," and we all know that an early "rough leaf" is the Turnip's best chance of escape from the fly. Speaking of Turnips, we find here that those sown early in February run every one of them to seed, unless the spring is genial and constant. When sown in March the proportion of seeders is less, and when sown after April they are reduced to a minimum. No doubt the cause of seeding in the early crops is the fits and starts of growth which the plants are subjected to by changes of temperature. Buttoning of early Cauliflowers may be set down to the same causes.

At different times there has been a good deal of discussion as to the best time for planting Potatoes. Excellent cultivators have asserted that the best results cannot be expected if planting is delayed till after the beginning of March. The late Mr Thomas Andrew Knight says he uniformly found, that to obtain crops of Potatoes of great weight and excellence, the period of planting should never be later than the beginning of March. This may be the case in some localities, but it does not by any means hold good as a rule. In many parts of Yorkshire, in the upland districts of the midland counties, and even in more favoured localities, farmers do not commence planting the several crops till the beginning of April, and operations are often not completed till the first or second week in May, and yet splendid crops are the result: this we know from observation. Here we never have a satisfactory crop of "earlies" if they are planted much before the middle of March, and the general crop is always best when planted early in April. We once planted in February, and had only half a crop; many of the sets rotted in the ground, though planted whole. As far as we have noticed, those who planted late this season have by far the best crop, having escaped the late frosts and the unkindly weather which preceded them; the growth has been uninterrupted and luxuriant, while earlier plantations are in many cases curled and weakly.

Peas are another crop about which considerable difference of opinion exists in regard to the time of sowing, some preferring to sow for the earliest crops in November, and others in February. It is questionable if there is much advantage gained by sowing in November. Autumn sowings are much patronised by mice and other vermin, entail more labour and a good deal of attention, and it is certain they do not bear a better if as good a crop as spring-sown Peas; and they are very often not so early. It is a good plan to sow on turf and plant out; these the spring-sown will generally overtake; and if the latter are just lifted up with the spade and let down again before staking them, so as to give them a slight check, it will throw them into bloom sooner. The

Digitized by Google

later kinds of wrinkled Marrows do very indifferently if sown too early; the first of April is early enough in some districts for them, when a good crop is desired.

Carrots are a precarious crop in most gardens. They take long to get through the ground, and if growth is arrested at an early stage, we always think they are more apt to go off afterwards—indeed, they often get eaten over just when getting into rough leaf. This season we sowed rather earlier than usual, and had but an indifferent "braird." About the 10th of June we sowed again where the crop was deficient, covering the seed with fresh good soil, and this sowing bids fair to overtake the first and to be the best crop of the two, though sown nearly two months later than the other. Facts like these convince one that what is called early sowing is not always the best way of getting an early or good crop.

The same reasoning applies to bedding-stock of many kinds. Years ago we were taught that the latest-struck plants of such things as Verbenas and Alyssum, &c., were always the best, and sure to cover the ground sooner than autumn or early spring-struck plants, and the latest batches were always preferred for planting the most important places—a practice which experience tells us is safe. Old plants, or such as get coddled and moved about much, always come away less freely than those in which the first growing impulse has never been checked. This is exemplified in the Geranium as much as anything else. Spring-struck plants always *grow* best but flower least, so that autumn cuttings are better for planting; but with such things as Verbenas, where growth in the first instance is a desideratum, late-struck plants are by far the best.

The same effects are observable in young Vines propagated from eyes. Many put the eyes in in January, few defer it beyond the beginning of February, but nothing whatever is gained by such early work—indeed, the chances are against success. We have a quantity of pot Vines now that have long since been stopped at a height of 8 feet, and the eyes were not put in till late in March—in fact, the eyes were swelling when they were cut, and they have never known what it is to be checked since. J. SIMPSON.

WORTLEY.

NOTES ON HARDY CONIFERS.

WELLINGTONIA.

OF this genus—so named in compliment to the late Duke of Wellington—the well-known and highly-ornamental evergreen W. gigantea is the only species.

Digitized by Google

It is a native of the slopes of the Sierra Nevada, in Upper California, occurring in great abundance, sometimes in groves and at other times scattered through the forest, over a vast tract of country, at altitudes of from 4000 to 7000 feet. Though discovered and described by Mr Douglas in 1831, it was only introduced in 1853, seeds having been sent home in the summer of that year by Mr William Lobb, the successful botanical explorer.

The marvellous reports, first from Douglas, and amply confirmed by subsequent travellers, of the colossal size attained by this tree in its native habitat, compared with which the most gigantic hitherto known are mere dwarfs, combined with the strong probability of its being hardy enough for our climate, rendered its introduction an event of more than ordinary importance, not only to practical arboriculturists, but to all who were in any way interested in ornamental trees; and as might be expected, it was rapidly distributed and extensively planted throughout the country. The "Mammoth Grove," as the Americans call the locality where the Wellingtonia was first met with, and where the largest specimens are found, is situated about 200 miles from San Francisco, near the head-waters of the Stanislaus and San Antonio rivers, in a sheltered valley some 4600 feet above the level of the sea. In this spot, within an area of about 50 acres, there are still standing from eighty to ninety specimens, the average height of which is 300 feet, with a circumference of 80 feet. These dimensions are very much exceeded in several individuals, one of the largest being 365 feet high and 93 feet in circumference; while the "Father of the Forest," blown down ages ago, has a circumference of 110 feet at the ground. In falling, this giant had come in contact with some of his neighbours, and his trunk was broken off at a height of 300 feet; at this point he is 40 feet round, so that although the top has been long since destroyed, reckoning from the average taper of the others, it is not difficult to believe that he must have stood fully 450 feet high.

Various estimates, founded upon the annual rings of one of the largest, which was cut down a few years ago, have been formed as to the ages of these mammoths, and it is now generally believed that they must have seen the summers and winters of at least 3000 years.

The bark is more or less furrowed, giving the trunk the appearance of being made up of fluted columns, and in the old trees varies in thickness from a few inches to nearly 2 feet. The wood very much resembles Cedar, being light, soft, easily wrought, and of a pale-red colour.

In our pleasure-grounds—to which the Wellingtonia is as yet almost entirely confined—it is one of the most popular of ornamental trees, unsurpassed for planting in rows, either by themselves or associated

Digitized by Google

with other varieties, in long wide avenues; forming magnificent specimens singly on lawns, and indeed worthy of being selected for any position where an effective symmetrical tree is desirable.

Though perfectly hardy, and capable of resisting any amount of frost it is likely to be subjected to in this country, it requires to be planted in a situation sheltered from violent cutting winds, of which, in common with many others of the finest of the Pine tribe, it is most impatient, and from which it frequently suffers severely.

It is found to grow with the greatest luxuriance in rich deep soils, with a subsoil cool and moderately damp without being wet. Where the soil is composed of porous sand or gravel, and liable to extreme drought in summer, it makes little or no progress, and never becomes a fine specimen.

In favourable circumstances it assumes a neat conical form, with a straight robust stem densely clothed with branches from the ground upwards. The leaves, with which the branchlets are densely covered, are short, needle-shaped, and of a light-green colour.

Among several variegated forms now in cultivation, the finest is that which originated in the Lough Nurseries, Cork, a few years ago, and which is known as Aurea variegata. This superb variety is richly variegated with bright golden yellow; and having the neat conical habit of the species, and being equally robust in its growth, it has proved a great acquisition, and cannot fail, when it becomes more plentiful, to be extensively planted as a lawn-plant. HUGH FRASER.

HINTS FOR AMATEURS.—AUGUST.

THE usual protection of fruits from birds, wasps, and flies must not be forgotten. Where Currants, Gooseberries (Red Warrington is one of the best keepers), Cherries, and Plums are to be kept late, early netting is necessary. When the skins of the fruit are injured in any way, the fruit is almost certain to rot. A little shading when air can circulate freely is beneficial; close covering soon brings the crop to an end. Bottles with a little beer and sugar in them are useful traps. Lumps of sugar stuck on the trees are the traps of some: the insects are said to stick to the lumps as long as they last, and keep away from the fruit. Windfalls should be gathered up while they are useful, and sent in for use. All fruits should be gathered dry if possible. Peaches and Nectarines should be gone over frequently with a careful hand, and when with a slight pull they come off the trees, then is the time to take them; and we think their flavour is finer than when allowed to drop from ripeness on nets, &c. We have long since given up the nets, and seldom do we lose a fruit from being damaged.

Digitized by Google

They should be laid in a cool airy room, with a sheet of wadding laid on the shelf, then clean paper, and they will keep without a blemish till they are quite ripe. Always avoid letting wadding come in contact with fruit, especially the woolly side. When packing ripe Peaches, &c., we use wadding largely, but always keep the fruit enclosed in clean tissue-paper. Strawberries, Rasps, and Cherries always carry clean and sound wrapped singly in strawberry leaves, picked dry the night before they are wanted, and laid thinly on a shelf in a cool room: in the morning they are tough and pliable. The less handling fruit is subjected to, the better it will keep or carry to a distance.

An effort should now be made, if not done before, to get the necessary shoots nailed in for next year's bearing-wood. They should be got close to the wall, and the trees left so that sun and air have full influence over them. Crowding quantities of young wood together is fatal to success, and trees which are bearing no fruit, and making strong watery growths, might have one half of their roots lifted. Long naked roots which have run out of due bounds may be cut off. Retain all fibry roots; lay them into fresh loam, with a few stones or a little lime-rubbish in it made thoroughly firm: water may be given if necessary. If the trees by October or November show that they have not stopped their over-luxuriant growth, the other half of the roots may be lifted and treated in the same way, and the whole of the roots mulched: the results, even next season, may be first-rate. Such has been our practice for the last dozen years, and we can now look with pleasure at trees which were once growing almost wild, but are now loaded with fruit, the trees covered with natural spurs close to the wall, and foliage in the finest condition.

We cannot denounce in too strong terms the wretched practice of some cultivators, who without hesitation cut off all the principal roots when they "root-prune" their trees, then apply manure with the view of renovating the lost strength. If the trees do not go off with canker, they take to their old wild growth; then the system is denounced. Keeping the roots "near home" is a very important matter, as when they range far into the garden they are liable to find their way into poor unhealthy subsoil, leaving their kindly quarters without reaping any benefit from them. In orchards where soil is all alike the case is different, but even there the trees can be helped greatly by attention to keeping the roots out of unhealthy subsoil, and having fibres instead of long naked thongs. Strawberries may now be planted; if they were layered in pots, they can be easily managed now. After they are planted, give a good soaking of water at their roots, then draw a little of the dry soil over the moist ground, and the plants are not

Digitized by Google

likely to require much more this season. When fruit are picked, and the plants to be retained, the runners, mulching, and dead leaves may be cleared away, leaving the plants clear and entire: a quantity of rotten dung may be forked into the surface, if necessary. The system of cutting off all the leaves is seldom practised now, and we have never recommended it, as it appears unnatural. But there are some gardeners of great experience who advocate it, and in certain cases practise it. For experiment, we did a few rows last season; but a month too late, however, to do justice to the practice. The result on strong growers like Duc de Malakoff and Dr Hogg was actually beneficial, while on some rows of Sir Harry, taking every alternate one in the brake, the result was not so satisfactory. It should be kept in mind that Strawberries, like other fruits, do not mature their fruiting-buds when they are smothered with foliage till the sun's rays have lost their power on them; therefore in such cases excess of foliage is really an injury. We often separate from old Strawberry-plants good crowns, and plant them with manure well worked in the soil, and the crops the following season are sometimes the best. But we always keep in mind that "there is no rule without an exception." One's own experience is not always to be the guide of others. Assist nature as far as possible, but do not push her to excess.

Flower-gardens will now be coming to their best, and much can be done to keep a fine display by strict attention to order and good keeping. Clip off dead petals, trim in edges, top Pelargoniums, and thin out some of the leaves from their centres, and the flowers will come up strongly above the foliage. Keep the hoe or small hand-prong in use when it can be done—a hard battered surface soon brings flowering to an end. Propagation of young stock will soon require attention. Verbenas, Heliotrope, Petunias, and the more delicate kinds of Pelargoniums, may have attention first. Boxes, pans, or pots may have good drainage placed in their bottoms, some rough open soil placed over it, then a layer of light sandy soil placed over the whole, in which the cuttings, an inch or two long (except for Pelargoniums, which may be as large as possible), may be placed, and made tolerably firm, standing clear of each other: place them in frames, pits, or any other structures. Water and keep close for a few days, shade from bright sun; and when they will hold up their tops, and signs of growth appear, air may be given gradually and freely in course of time. When rooted, the lights may be only used to throw off rain. Pelargoniums do best in the full glare of the sun, either in an open border to be potted or boxed when rooted, or placed in boxes or pots of good soil, to remain till February or March, to be then potted. It is an important object to get all bedding-plants well matured while the sun has influence

Digitized by Google

on them. Herbaceous plants of all kinds may be propagated by cuttings or by offsets; but stock can be increased to great quantities by dividing when growth is about to commence in spring, and answers very well.

Hardy annuals may be sown for spring blooming. Pansies may also be sown; they will bloom early and be well established in spring. Pinks and Carnations, if rooted, may be planted out into nursery-beds or frames if they are at command. If any are to be layered still, the sooner the work is finished the better. Bud Roses, if more are wanted. Examine those budded in June and July, and remove the ties where the buds have taken. Auriculas should not be subjected to heavy rains, but have abundance of air at all times, keeping the drainage always clear, and worms in the pots should have no quarter. Pelargoniums which have been cut back and are broke may now be shaken out of their old pots, roots reduced, and potted into smaller pots, using soil more sandy than is usually given to plants when potted into their flowering size. Keep them in a frame, shade for a few days, sprinkle overhead, and be moderate with water at the roots till growth shows itself,—then abundance of air, and the structure kept free from confined damp, are some of their chief wants. Chrysanthemums will now be well advanced; keep the roots from growing through the pots (this is to be observed with every plant), water abundantly at roots and overhead in dry weather. When the flower-buds form, give plenty of manure-water; keep the plants from being crowded. Flowering-plants for autumn and winter may now require attention: Liliums, Gladioli in pots, Tea-Roses, annuals, hardy greenhouse Ferns, variegated Veronicas, Fuchsias, Cockscombs, Globe Amaranthus, with the usual stock of Pelargoniums, Zonals, and all the coloured-leaved kinds, make a grand show. For winter, Lilacs, Deutzias, hybrid-perpetual and other Roses, Skimmias, and all the usual herbaceous plants and shrubs for forcing, should be placed in the sun, and well attended to with water at their roots till they are ready for work, when a temporary covering of glass, &c., will keep them right till they are set at work. Climbers should have in a great measure their own way—of course keep them free from other plants; their graceful habits are the chief features of beauty when in flower. Cut back partially those which are done flowering. Camellias to flower early should be kept under cover —a long course of gradual forcing of plants is always more satisfactory than the usual close forcing with artificial means so generally practised. The drainage of Epacris, Heaths, Acacias, Cytisus, and all other plants in pots, should be kept clear, and worms kept out. Those plants which have stood out unprotected from wet should be taken under glass as soon as possible, as the wet season has been a trying one. Their

Digitized by Google

pots should be well washed, clean surfaces given, stakes renewed if necessary; but do without them if possible, as they are a sad deformity. Cinerarias, Primulas, and Calceolarias should now be allowed to grow freely. Give plenty of air, and keep off insects, and allow them plenty of room. M. T.

LILIUMS.

Liliums are extremely useful, and greatly admired for their noble and handsome appearance while in bloom; the rich marking of all, especially the varieties of Auratum, being something wonderful. They are not well adapted for house decoration, unless it be a few blooms amongst the cut flowers. When kept in a room where there is not always plenty of air circulating amongst the plants, the atmosphere becomes sickly and quite oppressive to live in. Their place is in the greenhouse or conservatory, where they are grand objects, towering above other things. The bulbs should be potted when at rest, and on no account be allowed to start into growth before this operation is performed. They should be carefully shaken out of the old soil, classing the bulbs according to their sizes. If large specimens are wanted, use large pots well drained, sprinkling a little soot over the drainage, so that worms may be kept from entering while standing out of doors in summer. The largest-sized bulbs should be used for the largest pots, using smaller pots for the younger bulbs. We find 11- and 12-inch pots large enough for ordinary purposes. Fill the pot about half full of the compost, which should be equal parts of turfy loam, peat, with a good proportion of old cow-dung put through a half-inch sieve, with a good amount of sand well mixed together. On this we place the bulbs, about eight and nine in 11-inch pots, unless Auratum, of which we only put three if good strong bulbs, covering all overhead to the depth of an inch, and standing them in a frame where they can be close to the glass and get plenty of air, keeping the soil always in a healthy state, but rather dry, until there are signs of growth, when a little more water may be given, and increased as the season and plants advance. When the shoots have grown about a foot or so, they will begin to throw out rootlets around the base of the stems; these rootlets should be covered up with a rich top-dressing, repeating it until the pot is full, and all the soil taken possession of by the roots. Give frequent waterings of manure-water. Sticks should be put to each stem, to prevent the wind from breaking any of them. When all danger of frost is past, plunge them out of doors, attending to them with water, and tying the shoots as they advance. Lilium thumbergianum grandiflorum, if potted with the other bulbs in autumn, will be in fine bloom early in

Digitized by Google

May; it is useful either for cutting or general decoration, not having such a strong scent as some of the others. It should not be covered like the other bulbs, but have a good light airy situation all through the winter, putting three bulbs into a 6-inch pot. When in bloom, and placed amongst a lot of Calceolarias at intervals, the effect is grand.

CELOSIAS.

This is a very useful and ornamental class of autumn-flowering plants. Large plants can be grown in a very short time. When the tall varieties are grown well, we find them useful, both for cutting and for mixing amongst other things in the greenhouse. C. aurea pyramidalis, and a selected crimson variety, we find the most serviceable. To have large plants by September the seed should be sown in February, using rich light soil, in pots that have been previously well drained. Fill the pots to within an inch of the rim, then sift a little fine soil over the surface, gently pressing it level: when the seeds are sown, sift a little more over them, and give another press down, and water with a fine-rose pot. They may be placed in a Melon or Cucumber frame with a piece of glass over the pot, and shaded with a piece of paper which will check too rapid evaporation, if the weather be bright. When fairly through the soil, remove the glass and shading, giving plenty of water; keeping them close to the glass as soon as the second pair of leaves is developed. Let them be potted off singly into thumb-pots, using a still richer compost, replacing them into a close place for a few days, shading from bright sun; here they will make great progress, and soon require another pot, which should be given whenever the roots get all nicely through the soil, introducing this time a more liberal quantity of old cow-dung in the soil, placing them near the glass to keep them dwarf, for if drawn they never branch out near the pot. Daily syringing assists in causing them to throw out side-shoots. When well-grown, they resemble a pyramidal Fuchsia. If placed in a temperature of 65° by night, with a rise of 10° by day, with slight shading from bright sunshine, they will make rapid growth. If large plants are wanted, a few may be put into 11- or 12-inch pots. Nice plants for decoration can be had in 9- or 10-inch pots; the larger sizes yield more for cutting from, for which they are invaluable. After the last shift has been given, and the pots are well filled with roots, begin to give liberal manure-waterings every time water is wanted, and syringe them twice a-day until they flower, otherwise red-spider will most likely take possession of the foliage, when a portion of it will fall off and spoil the appearance of the plants. As the plants begin to show for flowering, gradually reduce the heat, so that by the time they are in full bloom the best may be transferred to the conservatory, where the yellow variety

Digitized by Google

especially looks fine mixed with dark Fuchsias, &c. To have them good every year let the best plant be selected and set aside to save seed from, choosing one with a good habit and rich colour. The dwarf varieties require a different treatment, not needing such large pots, and to have them fine, should have the assistance of bottom-heat all through the growing season. Plunged close to the glass in a frame where a temperature of 65° can be maintained, after the first pricking off into thumb-pots, allow them to show the combs before giving another shift. As soon as the combs are fairly formed, let all have a shift into a size larger pot, using a very rich compost, replacing in their old quarters, slightly shading in bright weather. With proper attention another pot will soon be wanted, which should be the last, unless very large combs are required. Six-inch pots are most useful, and good combs can be had in them; the size of the pot being smaller, more use can be made of them in front lines than if larger. When fully grown and matured, harden off and remove to the conservatory, where they will stand for a long time. If by any means some of them get rather tall, head them down, and make cuttings of them; if placed in a close warm frame with a brisk bottom-heat, they soon root when this is done. They must be kept very close, and never allow the least ray of sun to strike them.

THORESBY PARK. A. H.

THE PELARGONIUM.

THIS noble old favourite flower does not appear to make the grand display at our exhibitions of the present day that it did a few years ago. This is much to be regretted, as in our opinion it is a class of plants second to none when well grown. We daresay most of our readers have at some time or other been delighted at our exhibitions when they beheld those grand specimens, so perfect in shape, and so gorgeous in colour. Such a deserving old favourite as this cannot be allowed to sink in public estimation without our expressing a hope that the Pelargoniums will before long become as popular as ever. They are comparatively of very easy culture. On this point I purpose making a few brief remarks. The plants will now have done flowering, and should all be cut down, both large-flowering and fancy varieties. Before performing this operation, be sure to have the plants in rather a dry state, as the wounds will heal the sooner. After the plants are cut down, they should be placed in a cold pit, giving them plenty of air, and watering them sparingly, as this will cause the eyes to break more vigorously. To keep up a succession of young plants, a few of the best cuttings should be struck every year. These should be placed round the edge of 4-inch pots, and put in a cold pit, and slightly

Digitized by Google

shaded when the sun is bright. As soon as they are rooted, they should be potted off into small pots; and by keeping them shifted on as they fill their pots with roots, they will make nice young specimens the next year. After the plants have attained the age of about five years we consider them to have arrived at their greatest perfection, although they may be grown on for eight or ten years, and to a very large size; but there is not that amount of vigour about them as in younger specimens, and plants of moderate size are much more effective than those that are very large. When the shoots on the cut-down plants have grown about an inch long, the plants should then be shaken out and disrooted, clearing away every portion of the soil about the roots, which should then be cut off to the length of about 2 or 3 inches, leaving the fibrous parts. The plants should then be potted into as small pots as you can conveniently get them into, and placed in a pit or frame, giving them a good watering, and keeping them sprinkled over the foliage about twice a-day, keeping the frame close, and shading them well from the sun until they have again rooted out to the sides of the pots, when abundance of air should be given. Take care at all times to keep them clear from green-fly. During the month of October the plants will again have become sufficiently established to require another shift. These may now be potted into the pots you intend to flower them in; 8-inch pots are the most suitable size for specimens. The most suitable soil for them consists of two-thirds of good turfy loam, and one-third of good short horse-dung; this should be mixed and laid together for twelve months before using it, adding to the soil as you use it half a peck of silver-sand to each barrow-load. After the plants have received their final shift, they should then be placed in the house and watered rather sparingly. Give them plenty of air whenever the weather is favourable, always avoiding cold frosty winds. Should the weather be wet and cold, a little fire-heat may be given, but not more than is absolutely necessary either to dry up the damp or to exclude frost. As soon as the shoots become sufficiently long, these should be tied down. The best way of doing this is to tie a piece of wire just under the rim of the pot, and then fasten down each branch to it at proper distances apart. When the shoots become too long to be drawn down in this way, lay some sticks across the top of the pots, securing them to the wire under the rim. By these attentions the plant attains its required form. In February the plants will require more water; but whenever you do water them, give them a thorough watering, in order to moisten the ball throughout. This is very essential.

John Ball.

(To be continued.)

Digitized by Google

PEACHES—SPURS *VERSUS* SHOOTS.

We have no intention to write an essay on Peach-tree culture, far less would we venture to propound a new theory on the cultivation of that well-known and much-esteemed fruit. Our object at present is simply to draw the attention of the young man of little experience, about to enter on his first place, or those contemplating the replanting of their walls or Peach-houses, to the relative merits of the spur or young-shoot system of training. In wet sunless summers (like the present), and in cold or northern localities, the spur has a very great advantage over the young shoot. In the first place, it simplifies and lessens the labour very much; it admits a greater amount of light and sunshine to play amongst the branches, and exerts a beneficial influence both on the flavour and colour of the fruit. The spur will ripen in a lower temperature than the shoot, consequently the probability of failure is reduced to the lowest point.

The merest tyro in Peach-growing knows well the liability of half-matured shoots to drop their flowers, and in some instances their fruit, shortly after they have set. It is a fact that failures frequently occur in late houses, no doubt caused by the wood of the previous autumn being imperfectly ripened. Were note taken of these failures, I venture to assert that the spur system would be numbered in few of them, from the fact that it almost ripens as it makes its short firm growth. Therefore a mode of training, pruning, or pinching, as the case may be, which will assist a tree to mature its growth in a lower temperature than another mode, is equivalent to an advance of temperature of the same number of degrees; and, to make use of a common axiom, is a step in the right direction. When about to plant Peach-trees, we cut them back to 9 inches or a foot of the previous year's cut (assuming that they have been once cut over in the nursery); and as the soil in which they are is good fresh loam, they are ready to start off at a canter without spurs; but we do not allow them to run far, for we pinch the top off the strong leaders to induce side-shoots to fill up the space as the trees advance, taking care to leave plenty of room between them. All shoots not required to lay in are pinched back to three or four leaves. Being the first formation of the spurs, no doubt the uppermost bud on each will start, but those secondary growths should be pinched close back, and not allowed a point in advance, as is generally the case with laterals on Vines.

As a matter of course, the same process is repeated—viz., laying in and pinching back, year after year, until the allotted space for the trees is covered. When winter returns, and cleaning, nailing, and tying have to be attended to, it will be found that trees so treated require very little pruning—certainly no mean recommendation, when stone-fruited trees are so impatient of the knife. We have no wish to depreciate the young-shoot system in southern counties or warm localities, where the wood gets thoroughly ripened, and in gardens where labour is abundant; but we repeat, that for cold or northern districts, where every ray of sunshine should be made the most of, and where labour is at a minimum, the spur system, so far as my experience goes, is the most profitable for general purposes. I may just mention that I have two trees under my care which I cannot spur; they make long slender willow-like growths, and are not satisfactory.

Our memory carries us back for a number of years, when entering on our first charge, on one of the lower clay-beds of Lancashire. Taking our first round of inspection on a cold November morning, our attention was quickly arrested by a Peach-wall, verdant as the month of May. On a close inspection, we found

Digitized by Google

that a great number of shoots were tied along the old stems, and laid over one another—a most objectionable practice in any quarter, particularly in a cold one. The only ripening process they underwent was the influence of a few degrees of frost to divest them of their foliage.

To have attempted to spur such trees would have been to expose their nakedness, and to expect fruit from such wood as unreasonable as to think of gathering Figs from Thistles. Since that time especially I have had a wholesome dread of a wood-crop on Peach-trees. We are of opinion that some of our Calendar-writers make too free with the verb to "disbud." The initiated are ready to expect some virtue to follow the operation, and with willing hand they partly denude their trees, and at their leisure regret that the verb had not been to "pinch."

It may not be out of place here to ask how so many amateurs have their Vinery and so few a Peach-house? how so much has been written lately about the Vine, and so little comparatively on the Peach? Is the cultivation of the former not so well understood, or is the latter considered a third-class fruit?

KEITH HALL. G. DONALDSON.

SHANKING OF GRAPES.

THE above disease is common to every kind of Grape that I ever cultivated, the Madresfield Court Vine not excepted; and I expect the disease will be more general this year than it has been for some years past, the sunless spring and summer we have had being the cause of the inability of the Vine to perform its functions when ripening its fruit.

Where the Vines are overloaded with fruit, and have produced a good crop the last year, where the young Vines are very luxuriant the loss in "shanking" will be immense; and the young gardener will be grievously disappointed by the failure of those Vines from which he expected so much pleasure. Vines that were "roasted" during the great heat in August last till their foliage turned white, will, if there be a crop of fruit on them (a doubtful case), "shank" to a serious extent. Our clever friends, the chemists, tell us that they can obtain brandy from any kind of cellular tissue. The chemist's laboratory is furnished with every necessary appliance to enable him to extract the brandy out of the healthy cellular tissue of former years' growth, while the natural chemist—*i.e.*, the bunch of Grapes—has to draw from an inferior tissue, arising from a dark atmosphere of the present year, as well as all the other acts and offences of former years that may have weakened the stamina of the Vine, to *produce* sugar and colouring matter. Both the artificial chemist and the natural one are equally at a loss when the cellular tissue is below a given value: the former cannot *extract* brandy, and the latter cannot *produce* sugar and colouring matter.

A BEWDLEY FORESTER.

Digitized by Google

CHILWELL NURSERIES.

FEW places will repay the time spent in visiting them better than will Mr Pearson's grounds, if the visitor has keen horticultural tastes, and can appreciate what I may term clever horticultural manipulations. Here he will learn all the secrets of crossing and recrossing, all the various strains of bedding, Zonale, Nosegay, and Tricolor Geraniums, and behold with admiration the results before him planted in the open ground, so as thoroughly to test their merits. There is no coddling of plants for exhibition here; all have to pass through the crucible, and thoroughly unscathed have many of his seedlings done so. Amongst Tricolors we noted William Sandy as one of the best we ever saw. Lady Manners and Abram Bass are also splendid in the same class. As a pink Nosegay, Amaranth is a noble flower, of a deep rose-colour, and when better known it will be grown by the thousand, both for pot-culture and bedding purposes. Amongst bedding scarlets, take colour, shape, and habit into consideration, and his Corsair has no equal. These, however, belong to the class Mr Pearson sent out this spring, therefore they are well known. I will give a list of such as I noted that are gems, and to come out next spring: Dr Tait, Mr Sutton, Miss Skipworth, Mrs Young, Mrs Holding, Mrs Musters, Matilda, Geo. Stevenson, Mrs Hytche, Robert Evans, Mrs Cooper, Frank Mills, and Mrs Turner. Among Tricolors to come out next year I noted Rose Wood, Mrs Ferm, and Mrs Parr. My time did not allow me to make descriptive notes, but I saw enough of the varieties, the names of which I took, both in the open ground and in pots, to lead me to order all I name, and many others of which I took no note.

In the trial-grounds I saw thousands of seedlings, a great many of them fine pinks of various shades.

Mr Pearson, however, does not limit his hybridising to Geraniums. He has scores of seedling Vines planted with a view to proving them. In one house I saw a couple of seedlings from Trevouren Muscat that looked very promising; and another from the Alicante, showing a large bunch heavily shouldered.

His orchard-houses are unique. Never before did I see peach-trees in pots in such rude health, with such heavy crops of fruit on them—twelve to fourteen dozen being quite common on a plant, and fine fruit. Hale's Early Peach deserves to be grown wherever it is important to have Peaches very early. It is at least three weeks earlier than the Royal George, and a week earlier than the Early Rivers. The latter seems to have a tendency to split its stones. The young Peach and other trees, as Plums, Apricots, and Figs, grown for sale in pots, were in the highest state of cultivation. Here are also thousands of Vines grown in pots for sale, all bearing the marks of high cultivation.

Amongst Figs I noted as of great excellence La Madalin. It is of a golden colour, bears freely, and is of first-class flavour. Bourgousotte Grise is also a great bearer. Mr Pearson hits the happy medium of keeping his Figs highly fruitful, yet in rude health, by plunging the pots in the soil, and letting the plants root through into the border.

I paid a hurried visit to Mr Foster's place, near Chilwell. He is the builder of Mr Pearson's houses, and they do him credit. In his garden I saw in one vinery two Vines of Muscat Hamburg, grafted, as Mr Pearson does them, on the Black Hamburg. The one had 33 fine bunches on it, the other 34, and they were well swelled in berry, and colouring all that could be desired. There is a remarkable lesson to be gained in Apricot culture at this place. Mr Foster built a long shed for his carts, timber, ladders, &c., and he put a glass roof on

Digitized by Google

it. To the south-west there is a garden-wall about 6 feet high. The roof is span, with no ventilation at the apex, but entirely open on the other side to the north-east. The trees are planted against the wall and trained to wire under the glass, fully exposed to all the cold east winds, receiving no water at the root except what their roots may receive underneath the wall, and they are laden with splendid fruit. The lesson I learned was, that when we grow Apricots under glass we give them far too little air; the house should be kept open night and day, no matter what the weather is.

Of Mr Pearson's seed-grounds, orchards, and general nursery stock, it is not my intention to write, except to remark that they all bore the mark of a master's hand.

W. THOMSON.

DIONÆA MUSCIPULA, OR VENUS'S FLY-TRAP.

THIS is a very singular and particularly interesting little plant, on account of its curiously constructed two-lobed leaves fringed with hair-like appendages; and their sensitiveness is such that they act as a trap for insects which alight on them. On the inside of each lobe are three small hairs, and as soon as anything touches these appendages, which are the sensitive organs, the trap closes immediately; and if an insect, the more it struggles to get free the more complete a prisoner it becomes, as the trap fastens itself the more closely till the prisoner is dead, and after a few days the trap opens again, to be in readiness for any intruder. I have not the least doubt that the plant may be benefited from the matter thus accumulated in its toils.

A few hints on the treatment of this singular little plant may perhaps be acceptable to those who have not had experience in its management. In spring, as soon as the plants show signs of growth, they should be entirely shaken out of the old soil, washed or syringed clean, and repotted in rather small pots at first, using fibry peat and a little brick broken very small. The top of the soil should be covered with live sphagnum cut very fine, and after watering through a fine rose, press the top moderately firm all over. The heart of the plant should never have anything growing over it. They do best kept rather close to the glass in a stove temperature, not overmuch shaded. If covered at all with a bell-glass, it should be only during the day, and only for a time after the first potting: after they get established, they are better uncovered. As the plant increases in growth, increase the supply of water: when well established, and the weather is very hot, water with a fine rose or syringe six or seven times daily. They require a deal of water when in healthy growth, and comparatively little shading is necessary. The traps will be large and vigorous, lying close on the sphagnum, and of a dark-reddish colour. As the plant shows signs of resting decrease the supply of water, and in winter keep it very quiet, giving but little water, at the same time avoiding any extreme

Digitized by Google

of dryness; and when watered, apply it round the sides, not wetting the heart of the plant. The sphagnum should at all times be kept clipped short with a pair of scissors, so that it does not intrude on the plant, as the death of hundreds of plants through the winter is caused from want of attention to this matter.

About twenty years ago I exhibited at Chiswick a very fine specimen of this plant. They were first started in small pots, and then transferred into a large pot 20 inches in diameter. The plants covered the whole of the top of the sphagnum, and the late Dr Lindley called the Queen's attention to it, and wanted to show her Majesty its sensitive nature, but to his disappointment he could not get it to act. The week after, the Doctor made mention of the plant in the 'Gardener's Chronicle,' stating what a fine specimen it was, but that it would not perform before her Majesty. Had the doctor known where to touch the plant, it would have condescended to perform its peculiar mechanical-like process of closing like a trap. A. Brown.

Tooting.

MELON CULTURE.

NO. II.

SOIL AND PLANTING.

Like most other fruit-bearing plants, the Melon thrives best in loamy or calcareous soil—rather adhesive than otherwise. The top 6 inches of an old pasture that has been stacked in the compost-yard for twelve months is to be preferred. For the production of early Melons, in the comparative absence of sun, we do not recommend any addition of manure, especially on dung-beds, as Melon roots generally penetrate beyond the soil and feed on the manure and leaves of which the bed is composed. Neither do we recommend the soil for very early Melons to be so retentive as is desirable for their summer culture. In preparing such soil for being put into the frames, the turfy portions of it should be broken up with the hand or with a spade, and the rough and fine portions well mixed together. Wire-worms are most destructive to young Melon plants; and if there be any in the soil, it should be carefully examined and the worms removed. As soon as the fruiting-bed has begun to heat, place a ridge of the soil 1 foot deep, about 2 feet wide at base, and tapering to 8 or 9 inches at top, along the centre of the frame. The ridge should be pressed firmly with the hands as it is formed, but not beaten with a mallet, as is frequently the case, especially if it is heavy. On hotbeds such as are now being considered, it is a safe plan to place thin turfs, grassy side downwards, all the length and width of the

Digitized by Google

ridge of soil. It prevents the likelihood of the roots of the plants being burned by too violent a heat. All the remaining surface of the bed should then be covered with 2 inches of the loam, rather firmly pressed down, to prevent steam from escaping too freely into the frame. As soon as the temperature of the ridge of soil has risen to 80° or 85°, and the plants are ready to plant as already referred to, let them be carefully turned out of their pots, and planted two in the centre of each light, if they are such as have been stopped when young; but if not stopped, two every 2 feet apart, placing them sufficiently deep in the soil to have the seed-leaves about half an inch clear above the surface. If the loam is moderately moist, and the weather dull, and less air required, it will not be necessary to water the plants when planted, nor as long as they appear to prosper satisfactorily without it. The state of the weather must, however, determine this, as, if the sun comes out brightly, and the plants show signs of drooping when the necessary air is on, let them be watered, as shading in all stages of Melon culture is an evil which should only be resorted to when the grower is compelled by sudden bright sunshine after a time of dull weather—a state of things which, early in the season, must be carefully watched, for a half hour's neglect will destroy the plants if the frame is not properly aired and shaded—less air, of course, being required when shading is necessary. The bottom-heat, too, is apt to be dangerously increased with sunshine; and as soon as it exceeds 95°, it is a safe plan to bore a row of holes along each side of the ridge to let it escape.

Moulding up, &c.—After the plants fairly take with the soil and have begun to grow freely, look out for their roots at the side of the ridge, and as soon as they appear cover them with 2 inches of warm loam—this to be repeated as soon as the roots take possession of each successive layer. The original ridge, especially in the case of early Melons, should be left a few inches higher than these additions of soil; and the bed, by the time the final earthing-up is given, should slope to about 6 inches deep of soil at the sides of the frame. For later crops a greater depth is necessary, but for early crops this is enough.

The night temperature, after the plants are planted, should range from 72° to 75°, as near as that can be maintained. And, of course, as in the case of seed-beds, this has to be regulated and kept up by coverings, linings, and air-giving. Air-giving should be attended to by degrees, as the day progresses and sunshine strengthens; and it requires to be taken off in the same careful way in the after-part of the day, but shutting up with sun-heat at a temperature of 90°, and especially while the heat of the frame is high, — after it is newly put up—put on a chink of air for the night, if they are good close frames

Digitized by Google

or pits. In early spring it is seldom that much artificial moisture has to be supplied in the frame. This, of course, depends much on the amount of sunshine and air given; and the rule should be to prevent an arid atmosphere, or the surface of the soil from getting dry, by dewing it over with tepid water from a syringe at shutting-up time. It is seldom that much more watering than this is required with early crops until after the Melons are set; and the less water they can be grown with the better.

Impregnation, &c.—The system of training and stopping already described will have to be attended to as the plants extend themselves towards the sides of the frame. And if they are all stopped at one time, so much the better, because they are then almost sure to have the female blossoms expanded and ready for being impregnated at the same time, which is very desirable, as the frame requires to be kept dry and the plants not watered while the crop is being thus secured. As soon as the blooms are perfectly expanded, the pollen loose and powdery in the male flower, remove from them the corolla and apply it to the centre of the female, giving it a turn round, and leaving it resting in the centre of the bloom. This simple operation should be performed in the middle of the day, when the sun is out and air on the frames, under which circumstances the pollen is most likely to be dry and effective; and they must be daily examined and attended to in this way until a full crop is set. This is easily known by the blossom shutting up, the fruit to which it is attached becoming of a shining healthy hue, and swelling rapidly. If two plants are planted every 2 feet, as already recommended for early, or indeed any crops, two fruit will be sufficient to each plant, which will yield eight fruit to every light, or 4 feet run of the frame. Of course, if more fruit are desired, they will not be so large and fine. Immediately the fruit are set, and it is easily seen that they are swelling, the superfluous ones should be removed, and the soil watered, as it generally is dry after the setting-time, and the rapidly-swelling fruits make great demands on the plants. Let the water be soft rain or pond water, in all cases a few degrees warmer than the soil in the frame. It is very undesirable to be giving driblets of water at short intervals. Let each watering be thorough, so that it be the seldomer necessary. Generally two waterings after they are set are sufficient to carry the fruit to maturity, as the surface of the bed is now completely shaded after with foliage. No water should be given after the fruit have ceased to increase in size, or they will be very apt to burst and be spoilt. Besides, much moisture in the soil is inimical to good flavour, and a flavourless Melon is a very useless production. If they show any signs of suffering before the fruit begin to change

Digitized by Google

colour, syringe the foliage and sides of the bed gently, in preference to giving a root-watering, but this must cease immediately there are the least signs of ripening. At all times avoid watering close to the collar of the plants. It is apt to cause damping and canker at the neck of the plant; and, besides, the active roots are nearer the sides of the frame. As soon as ever the fruit are set, place a piece of tile or slate under them, to keep them off the damp soil; and, if possible, lay them on their crown, for they are generally dished so; and if grown and ripened on their side, it is generally more or less disfigured. As soon as they are full grown, raise them on a pot or piece of smooth brick above the foliage, so that sun and air can play freely about them and ripen them well, taking care that they are placed so that water cannot gather about that portion of them resting on the tile.

During bright weather in April and May a gentle sprinkling overhead, when the fruit are swelling off at shutting-up time, is very refreshing to them, and keeps up the necessary healthy humidity of the atmosphere. This must be discontinued immediately the fruit begins to ripen. If a fruit or two should be required as early as possible, dry some clean fine sand and cover up the fruit with it. The sun shining on this covering of sand places the fruit within it in a higher temperature, and it matures more rapidly.

When the fruit have attained their full size, do not let the heat of the bed decline; and as they give signs of colouring and ripening, which they often do suddenly, increase the air, but do not decrease the warmth. It is easily known when they are ripe by the aroma, and more correctly by the rind cracking round the union of the stem with the fruit. They are then ready to be detached from the plant and placed in a fruit-room to cool, after which they are ready for table.

Such is the routine of Melon-culture early in the season by means of dung frames or pits. The same points of culture apply to their midsummer culture by the same means, only the conditions necessary are secured with much less attention and anxiety. More moisture in proportion to sun heat and light is necessary; and in the heat of summer one barrow-load of well-rotted manure may be added to every five of loam. The loam itself may be somewhat heavier than for spring growth, and a depth equal to that recommended for the ridges—namely, 1 foot—be put firmly all over the surface of the bed.

D. T.

NOTES ON BEDDING PLANTS.

About the second week of August is a good time to begin putting in cuttings of Geraniums for next season's planting, beginning with the Variegated, Bronze,

Digitized by Google

and Golden varieties. These generally keep much better in 8-inch pots than in boxes.

Make up a compost of good fresh loam and leaf-mould, equal parts, sift through a half-inch sieve, and add as much sand as will keep it free and open.

If the pots have not been washed, have them well rubbed out; but wash by all means if time can be spared to do so. Put fully 2 inches of broken crocks into each pot, first placing a broad flat piece over the opening; and if any old Mushroom-dung be at hand, an inch or so put over the crocks will be an advantage, keeping the soil from working down among the crocks, as well as affording nourishment to the plants. If no Mushroom-dung is to be had, some of the rougher soil or the siftings of leaf-mould may be used instead. Fill the pot up with the compost, pressing it pretty firmly in with the fingers, and smooth off with a piece of flat board. Fifteen cuttings will be sufficient to put into each pot; press them in firmly with the *finger* in preference to the *dibber*. Unless the latter be used carefully, sometimes the cuttings get bruised, and so cause them to damp off. When all are put in, they should be put under cover somewhere, so as to avoid having them exposed to drenching rains. A cold frame tilted up at each corner with a brick on edge will suit them well. The lights should be kept at hand to cover during heavy rains; or, better still, they may be tilted up both back and front and left on altogether; the air will then play freely around and over the plants. Have them in a sheltered position, but freely exposed to the sun's rays. No more attention will be required than to keep them supplied with water, and an occasional picking off of dead leaves and flowers, until it be time to remove them to their winter-quarters.

Generally speaking, Christine and Trentham Rose do best in pots also, but most of the zonal varieties do very well in boxes. The best and most convenient size for handling is 2 feet long, 15 inches wide, and 4 inches deep. A few holes should be drilled in the bottom to let off surplus water. Place a flat piece of crock over each hole, then fully an inch of Mushroom-dung or siftings of leaf-mould; fill up with the compost, pressing it pretty firm, especially round the edges of the box, and smooth it off with the board. The cuttings may be put in at 10 by 6, or 60 in each box. When finished, they may be stood along the side of a walk, or in a sheltered position where they will be freely exposed to the sun. The boxes should be stood on bricks, or on small pots, so as to keep them away from the damp ground. Picking them over at times, and attending with water as they require it, will be all the attention they require until the cold autumn rains make it necessary to remove them to winter-quarters.

In selecting the cuttings, good strong short-jointed ones should be chosen, which have been well exposed to the light. They should have at least five or six joints. Cut away all the large leaves close to the stem with a sharp knife, as these, if left on, only hamper the plants, and have to be taken away afterwards when they cannot be so easily got at.

As a matter of course, each cultivator has his favourite varieties, which best suit his peculiar circumstances. We have seldom seen the following few varieties fail to give satisfaction. The best of all scarlet bedding varieties is Vesuvius. This, with Glow, Glorious, Stella, Waltham Seedling, Cybester, and Old Trentham Scarlet, makes a very good assortment for general purposes. Violet Hill is a splendid dwarf variety, very abundant bloomer, and of pleasing colour, first-rate for small beds or edgings. Old Indian Yellow makes a very pretty bed; and many other varieties will readily suggest themselves to the cultivator. Crystal Palace Gem is undoubtedly the best among the gold varieties; while Flower of Spring holds the same rank among the silver variegated kinds. Bijou

Digitized by Google

cannot be well spared for large beds and lines in ribbon-borders. There are many other good kinds, such as Queen of Queens, Pearl, Cheerfulness, Annie, Daybreak, Fair Helen, &c., which do very well in some places, while they merely exist in others. The same may be said of the bronze varieties. We ourselves like Mrs Longfield as well as any we have tried; it is easily propagated, a free grower, and of a fine colour when exposed to the sun.

Some of the double-flowering sorts make nice beds also; what they lack in abundance of flowers is fully made up in interest attached to each individual flower. Unfortunately, if the weather be damp, the centres of the flowers soon get disfigured. The best way to manage these is to pot the cuttings singly in small pots, and grow them on, shifting as they require it into 4-inch or 6-inch pots, which may be plunged in the beds when they are planted out. They will then produce their flowers in more abundance. The best kinds are E. G. Henderson, Gloire de Nancy, Emile Lemoine, Marie Lemoine, Madame Rose Charmeux, Princess Teck, and Triomphe de Lorraine. Many other varieties may be equally good, but we have not tried more. A few of the Ivy-leaved kinds should be grown, as they work in nicely for planting round the edges of vases, and suchlike purposes. They will winter very well in 6-inch pots, ten plants in a pot. J. G.

MADRESFIELD COURT GRAPE.

There is nothing singular in the complaint Mr Hunter makes against this Grape. I have grown it in an early, a midsummer, and late vinery, where in each case the crop was an utter failure. The disease to which it is subject has no relation whatever to what we commonly designate "shanking." Were it so, we have a remedy; but the diagnosis lies deeper, and is of a more subtle character. Were the berries thin-skinned, an excess of water either at the roots or in the atmosphere of the house would cause them to split, preparing a suitable constitution for decay. But no—the very reverse is the case; and besides, were the disease brought on by mismanagement, it is not likely to appear everywhere. With me, just before the bunches are fully coloured, a spotty gangrene shows itself on the surface of the berries, which spreads rapidly, and ultimately unites, reducing the tissue to a rotten mass, while at the same time the footstalks remain sound. Had this Grape a feeble constitution, we might assume, with some degree of confidence, that the disease is caused by debility, of which, after all that can be said in favour of this conjecture, it is no certain criterion. What we so much desire for our guidance is a series of facts; surface ideas are worthless—they count for nothing.

During my visit to the Birmingham Show I heard the merits of this variety discussed by several eminent growers, who, without any dissent, pronounced it a failure.

While on this subject, let me say a few words about the much-abused Golden Champion. It may not be quite all we desire, but still it is a

Digitized by Google

noble Grape, and can be grown to perfection. The largest bunches are produced on the long-rod system. Under this method I have had them over 3 lb. weight without a spotty berry. To prevent this, there should be a dry atmosphere, moderately warm, and free ventilation. The furious invectives fired off against this Grape from time to time from masked batteries were quite uncalled for, and let us hope that there existed no personal or sinister motives mixed up in the matter. At the same time, the Madresfield Court Grape was sent out to the public with marvellous pretensions, which it has been altogether unable to sustain. A. CRAMB.

TORTWORTH.

NOTES ON OLD GREENHOUSE PLANTS.

KALOSANTHES COCCINEA.

A WELL-GROWN specimen of this old plant presents when in bloom a display of floral grandeur not surpassed by any other pot-plant. The fragrance of its flowers, combined with their rich colour and the length of time they remain in bloom, are recommendations that should place it in the front rank of summer-flowering greenhouse plants.

Like all the Crassulaceæ, it is very tenacious of life; and, if kept free from frost, will live under very adverse circumstances. Had it been more difficult to keep alive, in all probability it would receive better treatment from plant-growers in general; and instead of plants having six or eight shoots surmounted with heads of flowers, we would see plants with at least as many dozens.

At the late horticultural show in Aston Park, Birmingham, there were two very fine plants of Kalosanthes coccinea exhibited. They brought to mind some notes I had made in reference to its culture. And thinking some reader of the 'Gardener' might be benefited by them, I beg to subjoin them.

Propagation by cuttings is the most usual way of increasing the Kalosanthes; and provided the necessary amount of heat is attainable, cuttings can be rooted at any season of the year, but the best time to do so is early in August. Select the tops of shoots that have not flowered, as these make the best cuttings, and in general they will be found to have the rudiments of a few young shoots starting from their summit. The advantage of these little shoots is of importance as forming a good foundation on which to build the future plant. Let each cutting be from 3 to 4 inches long. With a sharp knife strip off a few of the under leaves, and the cuttings are ready for insertion singly into 60's or 2-inch pots—the pots having been previously drained with pounded potsherds or charcoal, and filled with a compost of equal parts leaf-mould and silver-sand. Water through a fine rose, and plunge the pots in the propagating-bed, where a bottom-

Digitized by Google

heat of from 60° to 70° can be maintained. Cover with a bell-glass, or otherwise keep close for three weeks, at the end of which time the cuttings will be found to have emitted roots. Then remove the bell-glass, but let the plants remain another week or so in the plunging material. During the rooting process the cuttings will require little water, but enough must be given to keep them from showing any signs of distress through the want thereof.

After removing them from the cutting-bed, stand the plants for a few days in a cold frame kept rather close, so that they may not suffer from their change of quarters. As soon as they have filled their little pots with roots, they must receive a shift into a size larger; but be careful not to give too large shifts at any period of their growth.

I have found a compost of fibry loam and leaf-mould in equal parts, with one part of clean river-sand and a dash of wood-charcoal, to suit the Kalosanthes admirably. The plants will make considerable progress during the winter months, and must be repotted as often as they have filled their pots with roots. At each successive shift see that the drainage is perfect, and make the fresh soil as firm as possible in the pots. Stopping the shoots must be attended to from the commencement, as on this operation depends the symmetry of the plants. As often as the shoots have made 3 or 4 inches of growth, their tops must be nipped out; and if large specimens are desired, the cultivator must persist in topping for two years from the time the plants were struck as cuttings, remembering to operate on all the shoots at the same time. If intended to flower the second year, stopping must cease in the August following that in which they were struck. In either case, if stopping be continued after the first week of September, the flowers will not be so large and fine the following summer. For the same reason the plants should receive their final shift about the same time. Judicious watering is of importance towards success. The Kalosanthes is capable of enduring a considerable amount of drought, and should never get water until actually in want of it, and then in sufficient quantity to thoroughly moisten the entire mass of soil in the pots. As the plants progress in growth, staking and regulating the shoots must be attended to: this should be done in as neat a manner as possible. From the time the plants received their first shift out of the cutting-pots, they should stand in as light and airy a part of the greenhouse as possible. During the summer months a cold pit or frame will suit them. On fine days they will be benefited by removing the sashes, taking care to guard against the soil in the pots becoming saturated with heavy rains. Should greenfly or thrip appear on the plants, fumigate at once. Healthy plants, however, are seldom troubled with either. J. H. Brayton.

Digitized by Google

HORTICULTURAL EXHIBITIONS.

DO THEY ACCOMPLISH THE END FOR WHICH THEY ARE INTENDED?

WHEN horticulturists meet together and discuss matters relative to their profession, this is a question often advanced, but very seldom satisfactorily answered. At a season of the year when exhibitions are being held in almost every district of the country, and on every scale from "the Great International" down to the humblest exhibition, it may not be inopportune to ask ourselves the question, Do they accomplish the end for which they are intended? We answer the question by saying, Seldom, very seldom indeed! In order to be thoroughly understood, we should have said that horticultural exhibitions were intended for the general advancement of gardening, for the encouragement of the production of new and better varieties of fruits, flowers, and vegetables, and for the general encouragement of all the members of the profession to do everything in their power for the advancement of gardening as a science. Now in coming to the question again, again we say that horticultural exhibitions have in most cases failed in producing the result expected. The reader expects no doubt to have more than a mere opinion expressed by such an obscure individual as your humble servant, and for this reason I purpose fully discussing the subject, giving the why and the wherefore for everything I say. I shall here just point out a few of the leading points I intend to discuss; and first I would say, that horticultural exhibitions do not serve the purpose for which they were intended, because there is a great want of honesty among the exhibitors themselves; secondly, because in many cases judges are appointed who know little, and care as little, whether their awards are correct or not; thirdly, because in many cases awards are given through favouritism to articles of inferior value, while in other cases awards have been withheld where the articles were really of a more meritorious nature: this more particularly applies to articles staged for exhibition than for competition. In the fourth place, horticultural exhibitions are in many cases a failure through the want of a set of rules to guide the judges in arriving at a proper decision, each man arriving at a decision of his own, without, in many cases, being able to give a reason for so doing, any further than that it is his opinion that such and such a thing is the best of its class. In the fifth and last place, we say that horticultural exhibitions do not serve the purposes for which they were intended, because they give us no sure guide that the successful exhibitors are better or perhaps as good gardeners as many of the less successful competitors.

It will now be our duty to look at each of these five reasons separately, considering the evil influences they exercise upon the morality of gardening, and giving what, in our opinion, is the best means of preventing such results for the time to come. It must not be supposed that our remarks apply alike to all exhibitions and to all exhibitors. Certainly not, for it must be admitted that there are exceptions to every rule, and this among the rest; for we rejoice to think that in our humble profession there are men of sterling worth and genuine integrity, who would spurn the idea of anything selfish or tending to meanness; and who, if they had the power, would at once set to with hearty goodwill to purge our exhibitions of everything which tends to prove injurious to the interests of horticulture, and place them upon that pure and noble footing for which at first they were so well intended.

We said that a want of honesty among many of the exhibitors themselves was the first reason we would give why horticultural exhibitions did not serve

Digitized by Google

the purposes for which they were intended. One does not require to have a very great acquaintanceship among horticultural competitors to find out the truth of that. We can from personal knowledge affirm that very few exhibitions take place in which cases of dishonesty do not occur. With some exhibitors the first consideration is to win, *not to earn, the prize.* Herein lies the whole secret of the matter, not to earn the prize, but to win it — to be first for the articles exhibited, no matter what means have been used to accomplish the end in view. Let us look for a moment at a few of the means resorted to, in order to obtain the end in view. A very common practice is to endeavour, by some means or other, to ascertain whether such and such an article is as good or better than that possessed by the others who are likely to be exhibitors. If found inferior, there are two courses which are often followed: the first is, not to forward the article for exhibition, which practice we may dub the "want of horticultural moral courage." This habit is bad enough, although not so bad as the second, inasmuch as the intending competitor thought his article good enough for exhibition so long as he thought there was nothing better; but as soon as he found out there was no chance of his success he withdrew, thereby showing that the value of the prize was of more consequence to him than the interests of horticulture, because he withheld from the competition-tables an article which, while it might not have obtained a prize, was at least worthy of a place there, as he at first thought, and would have helped the filling of the tables, and have added more honour to the successful competitors. Here is the example of a man trying to accomplish a thing with one hand and destroying it with the other. The second practice, as I said, was worse than the first, as it is that of dishonesty. That is, the procuring of articles in an honest manner, and staging them as the *bonâ fide* production of the exhibitor, in order either to get the prize or to take it *from* a more honest, and consequently more worthy, competitor. This is perhaps the most unmanly—not to say the most ungentlemanly—proceeding any one could be guilty of. Nevertheless it is one of very frequent occurrence, and proves highly detrimental to the true interests of horticulture. Many cases of this have come under my notice. Another form of dishonesty—which ought to be as much deprecated as possible, and which is quite as injurious to the true interests of horticulture as any of the others already named—is the giving particular attention to a few things in order to gain certain prizes, while the general crops and the general place are far below mediocrity. To be plainer: I know cases where a small frame of Turnips, Carrots, and Potatoes, and perhaps a dozen Cauliflowers, are "coddled up" with no other end in view than the obtaining of perhaps three or four half-crown first prizes at a May or June show, while after the quantities requisite for the show had been got, there were not half-a-dozen of any of the articles named left for the table of the employer. In fact, I know a case where the employer, seeing his name given as the gainer of a first prize, asked his gardener if it was a mistake, but was told No, but that he had only grown what was necessary for the show, and that it would be some weeks ere any were ready for the table. He was told in reply by his employer that he was never again to be allowed to compete, as it was painting things in entirely wrong colours to take prizes at exhibitions weeks before his employer had the same articles placed upon his table. Now we think the employer was quite correct in doing as he did, for it is not for the interest of horticulture, far less for the interest of gardeners themselves, that such a state of things should exist. If every competitor would only select the best he could procure of

Digitized by Google

anything or everything under his care from the general crop, so that what he exhibited was a fair example of what he had got at home, then horticultural exhibitions would in this respect fulfil the objects they are intended to serve; and further, they would prove to the advantage of the gardeners themselves, inasmuch as there would be fewer complaints by employers of the inferior quality of such and such a thing in comparison to what they saw exhibited by such a gardener at some given show; whereas, if the truth were properly known, it is quite possible that the general crop in his own garden is far ahead of the general crop of the gentleman whose gardener has been so prominent as a prize-taker at the exhibition. Much more might and could be said upon this point, but we trust what has been said is sufficient to prove to the thoughtful reader that to continue—if he has begun—such practices is injurious to himself, injurious to his brethren in the profession, and is reducing the science of horticulture to the mere level of a lottery-box. It may be impossible, under present arrangements, to obviate to the full extent the evils here complained of; but we would urge upon all exhibition committees to have a rule making it imperative upon the exhibitor to prove to their satisfaction, if necessary, that all articles exhibited are a part of the general crop under their care. Such a rule, we think, is absolutely necessary, and would, we believe, prove highly beneficial, and in the true interest of horticulture.

We said that the second reason why horticultural exhibitions did not fulfil the purposes for which they were intended was, because in many cases judges are appointed who know little, and care as little whether their awards are correct or not. That this is the case, no one can deny who is in any way connected with shows in any way. The fault lies not so much *in* the judges themselves as *with* the committee who select them. In most cases the judges are selected from among the personal friends of the committee, or because they hold the appointment of gardener to some great lord or duke. Now in either case they may be right or they may be wrong. Their personal friends may all be good and eligible men as horticultural jurists: if such be the case, they are perfectly right so far; if not, they are as perfectly wrong. And further, it does not follow that because a man holds the appointment of gardener to a lord or duke, that he is the best man to select as a judge for a show. Nay, furthermore, we have in our eye at the present time several places which take a prominent name in the world of gardening, where in some places the past and in others the present helmsmen of the establishment were and are less competent men than many a man who holds a very inferior place. Good fortune and plenty of friends have favoured the one, whereas the chances of fortune and the want of friends have been against the other. For these reasons, I say, no man should be selected as a jurist on account of the situation he holds, or because of the influence of his friends at court. The selection should be made only on account of the undoubted ability of the person selected, and unless this be done, horticulture is sure in the end to suffer. We could point to many cases of gross injustice being done to competitors, through the want of knowledge on the part of the jurists. One case to illustrate all the rest. At one of the greatest shows in the kingdom a few years ago, we remember that the decision regarding Black Hamburg Grapes gave almost general dissatisfaction. The decision was the subject of discussion among gardeners the whole day. One of the judges was gardener to a lord of great importance, whose broad acres filled the half of a county, and whose gardens and grounds were the size of a goodly farm. The gardener referred to was a mere lad, yet from the importance of the place from which he hailed, he managed to exercise such a sway over the

Digitized by Google

other two judges — who ought and *did* know better — that in the end they acquiesced in his opinion, and awarded a prize which afterwards they were ashamed to acknowledge as of their awarding. The competitor who ought to have got the prize was very much disappointed—and he was a man of experience, and who had filled important situations as head-gardener for a quarter of a century—so much so, that he spoke of it to the judges; first of all he spoke to the two experienced judges, who said that now they saw their error, but that they had been much influenced by the third jurist, and were sorry the matter could not be rectified. This was so far satisfactory. Last of all, he spoke to the great man's gardener, who said the award was quite correct. He was then asked upon what principles this was so, and being unable to give clear and logical reasons, the competitor began to show him the points of difference, when our consequential young friend addressed him as follows: "Do you think I can't judge grapes? I did not come to be taught such things by *you!*" In fact, the committee, after a few mistakes of this sort, resolved never again to ask his services as a judge; but somehow or other they broke through their arrangements in this respect, and he is yet regularly displaying his gardening knowledge as a jurist at the same exhibitions. Many more cases I could cite, but this is enough, and shows us how necessary it is that men of undoubted and known ability, not only as gardeners but as men of known ability in growing the particular articles upon which they are set to judge, should be selected; and further, that these judges ought in every case to be brought from as great a distance as possible, so that there may not be the slightest room for supposing that any favouritism has been shown.

I find I cannot, as I at first thought, dispose of this subject in one paper: I therefore shall leave off here, and, with the Editor's permission, I shall return to the subject in the next issue of the 'Gardener.' JAMES M'MILLAN.

BOUGAINVILLEAS.

FEW species of stove-climbers or stove-plants in general are capable of assuming such an ornamental aspect as the subjects of our heading, meriting a more prominent place and more liberal cultivation than we often find accorded them. Though not possessing the lustrous hues of numerous other stove-plants, yet they are characterised by a peculiarly soft pleasing colour, combined with the extremely delicate outline of the quaint little bracts; presenting an exquisite and charming effect, not surpassed by any other plants of more vivid colour. B. glabra is the finest and most useful for decorative purposes, with small light-green foliage produced on running shoots, from which are emitted the gorgeous attractive lilac and rosy bracts in great profusion. This was the most conspicuous plant we had the pleasure of seeing in the fine plant-houses at the Royal Gardens, Frogmore, in July last season—then so ably superintended by the deceased and much-esteemed Mr Rose. It covered a large area on the roof of an intermediate house, and was then in one mass of gay colour. I rather suspect our Editor would be favourably impressed with the same plant, as Mr Rose informed us that he visited Frogmore about the same date, and would thereby see it in all

Digitized by Google

its grandeur, as this is a plant that produces and retains its charms for an unusual length of time. When judiciously cultivated, they flower for months without cessation. Small well-bloomed shoots can be conveniently introduced, with grand effect, into bouquets, flower-vases, &c. B. speciosa is also very useful, but more vigorous in habit than the former. The bracts are larger, and of a very chaste rose-colour, and not produced in such abundance as those on B. glabra. Stem thickly covered with acute spines. In propagating, we prefer the points taken from half-ripe shoots in autumn, in which state they root freely, and are not so liable to suffer from damp during winter as when tender and soft. Cuttings should be inserted into small pots filled with a mixture of loam and silver-sand, and plunged in a brisk bottom-heat, where they soon root; and if kept in rather a dry atmosphere of 55° during winter, they are in fine condition to shift in spring, when they should be grown on in a compost of turfy loam and peat. Old plants should be kept at rest in winter, something like Fuchsias; and may be started late or early in spring as required. They may be pruned and trained into any desired form, either to cover the roof of a house or as dwarf pot specimens. J. M.

THE YOUNG GARDENER'S SUNDAY ON DUTY.

Among the many subjects which have been discussed in the pages of the 'Gardener' and other Garden Magazines, there has seldom or never been any reference to the young gardener receiving or not receiving any remuneration for his Sunday duties. I think not a few of your readers will agree with me that it often occurs that many a young man left in charge of hothouses, &c., has to go through a harder day's toil on the Sunday than any other day of the week; although, as a rule, no head-gardener wishes more to be done than is really necessary, and does all he possibly can on the Saturday to lessen the Sunday's work.

Let us consider a wide range of gardens where there exists, say, from twelve to thirty glass structures, where one or two men, as the case may be, are left in charge, with the aid and direction of the foreman, at shutting-up time. These men must be on the move by 6 A.M. in order to have fires, damping, and ventilating, all in proper order before the sun comes out strongly. In fitful changeable weather they must of necessity be on the watch, and ready to run to modify matters all day long. And in the best-managed places there is always a certain amount of watering which cannot be neglected, except at the risk of permanent injury to many valued objects. And until he goes the last round of his thermometers and fires at 10 P.M., his duties are not over for the day; and then he retires to his room dirty enough to require a

Digitized by Google

thorough wash, for which purpose, in too many cases, he is not even allowed soap.

In the great majority of cases the young gardener has thus literally to work seven days for six days' pay, and I have no hesitation in saying that such a state of things is neither right nor just towards young gardeners. In some instances pay for Sunday duty may not be easily obtainable, so strong is the force and law of custom; but in other cases I feel certain Sunday pay would be granted if the matter were properly represented. I have myself received payment in one place, and I had only to report the matter here to have it freely granted. It seems strange that a gardener should have to give a day's gratuitous toil to his employer, when not even the crow-watcher from nine to twelve years of age is asked for Sunday attention without being paid for it the same as on a week-day—especially as many a young gardener's day is now nearly equal to two days of many another son of toil. J. H.

Lambton Gardens.

EUCODONIAS.

These are very pretty, useful, and interesting plants; and as they flower in winter, they are doubly valuable. They are very little known in this neighbourhood: I do not know of any one growing them but myself. It seems they are next to unknown, and as I am quite convinced of their usefulness, I trust you will allow me to bring them to the front, in a corner of the 'Gardener.' They are hybrid Gesneraceous plants, requiring the same management as the Gesnera, with the exception of their requiring a little more heat while growing: that at least is my experience. I have for years grown the Gesneras successfully, and any of the readers of the 'Gardener' interested, by turning to p. 19 of the 'Gardener' for January 1870, will there see the system I pursue. They are this season looking fully as well as I ever had them, but, owing to the cold dull weather, I am keeping them a little warmer than usual. But to return to the Eucodonias: the sorts I grow are E. Nægelioides diamantina and Nægelioides lilacinella. The latter is a fine robust free-flowering sort. I had very few plants last year, but this season I have a dozen or two; they are easily increased just in the same way as Gesneras. They were flowered in four, five, and six inch pots, single roots in each pot. Some of them were nearly three months in flower, and were useful in a variety of ways, making fine plants for table, and for vases in rooms and lobbies. This year they are looking better than I ever saw them, and as I had plenty of roots, I am growing them in a variety of ways. I started a few of them in single pots, and put the rest thickly into seed-pans, and at the present time there is hardly

Digitized by Google

any difference—either of the ways seems to suit them very well. Those started in small pots are now just shifted into 5- and 6- inch pots: the others were turned out of the pans and carefully divided, and potted in 7- and 8- inch pots,—five, six, and seven plants in each pot. Not having grown them in this way before, I cannot say how they will look, but I am expecting a good result. I shook them out of the store-pots on the 29th March, and stood them alongside the Gesneras: they were dried off last year in the same way as Gesneras, and kept beside them till starting-time. Soil same as for Gesneras—equal parts peat, loam, leaf-mould, with some rotten cow-dung, and a good sprinkling of silver-sand, using clean well-drained pots. I trust what I have said may induce not a few to cultivate these useful plants. I am sure they will not be disappointed. They are very cheap, and can be had from the nurserymen at any time. JOHN HEATH.

WHITE NAPLES ONION.

I CAN from experience recommend this Onion as a first-rate variety for autumn sowing, having found it superior to the Globe and Flat Tripoli. I made three sowings last autumn, to make as sure as possible of success, as I have sometimes found that they have not germinated well, especially in dry autumns, nor stood the winter well afterwards. Certainly last winter was not a severe one, and in that respect there was everything in their favour; but in the case of all the sowings of the White Naples, the result has been far more satisfactory than in the case of the Tripoli. They have made much finer bulbs, and showed much less of a tendency to run to seed than the latter variety. The first sowing was put in on August 3, and these gave a most useful supply all through the winter and early part of the year, but towards June most of them ran to seed. A second sowing made in the middle of August are now—end of June—the best, scarcely one having run to seed: still there are a few bolters among them. A third sowing made on the last day of August are fresh and vigorous, and scarcely an Onion has run to seed among them—the crop from this last sowing being far better than the two earlier ones, but of course would not have been so useful for early pulling. When a quantity of young fresh Onions are regularly in demand, we would recommend three autumn sowings. They are useful in many respects, and when the main spring-sown crops do not keep very well, they are of great service; and I consider the White Naples a variety highly to be commended for autumn sowing. R. N.

Digitized by Google

JUDGING AT EXHIBITIONS.

Notwithstanding the deplorable results which differences of opinion often directly lead to, there can be no doubt but that the ultimate consequences tend to good generally, and to real progress in the affairs of life. Discussion on disputed points in any matter, if fairly conducted, cannot fail to benefit all concerned. But in order that all the good obtainable from discussion may be brought out, it is necessary that the matter in dispute be examined from all points of view, otherwise no conclusion can be arrived at that will be satisfactory. It cannot be doubted but that many cases of judgment at flower-shows occur in which there may be room for difference of opinion, especially as between the exhibitors and the judges. There are errors of judgment committed, no doubt, oftener than it is desirable they should be, on the part of judges, and there are also mistakes made by committees of flower-shows in the selection of judges, and in the apportioning them to the different departments of the work; but we believe great care is exercised both by judges and committees to secure fair-play and give general satisfaction; and in the main, we think there is little ground for complaint on the part of exhibitors.

We have attended most of the great shows in the three divisions of the kingdom, for a period extending over twice that which "Hortus" names as comprising his experience of flower-shows, and our experience in regard to the way in which the decisions of the judges are generally accepted by exhibitors is very much more to the credit of both parties, than he endeavours to represent in the 'Gardener' of last month.

After reading his strictures on judges in general, the conclusion was forced upon us that he had written while smarting under the humiliation of a recent defeat, received at the hands of some set of judges in particular. If we are right in our conclusion, and in further supposing that "A," "B," and "C" represent the incapables who failed to recognise his merits, we are bound to consider him an ill-used individual indeed, and to sympathise with him accordingly. "A's" absurd preference for ripeness, "B's" proneness to exaggerate the importance of size, with the capers and "pop-goes-the-weasel" accompaniment of "C," could not fail to stir up the ire of any ordinary individual to some act of revenge; and what more natural, in a case of the kind, than the cheap and harmless clubbing which "Hortus" has administered to the three judges who failed to appreciate all the excellent points of his production?

But although we may be permitted to sympathise with "Hortus" in his ill-luck in having fallen into the hands of people who did not appreciate him, and at the same time approve to a certain extent of his mode of revenge, because it affords him evident relief while it can do no one any harm, yet we fail to perceive any general or particular good that is likely to accrue from his paper on this subject. It contains no practical suggestion likely to have the effect of removing the evils he so strongly complains of. He brings forward bold and sweeping accusations of incompetency and ignorance against men who act a very difficult and often undesirable part, without looking for any reward, except that they may win the confidence of those they temporarily, and we believe in nearly every case honourably, serve; and he cites some instances of errors of judgment that have come under his notice, but he proposes no remedy whatever, save that he repeats the cry of nearly every grumbler we ever come in contact with—there is no "common or recognised standard" to aid in judging, especially in the case of fruit. As "Hortus" appears to be really in earnest, he will, we presume, be glad to be reminded that there is a little rule or

Digitized by Google

standard applicable to the judging of nearly all kinds of fruits, particularly so to collections in which he appears to have an especial interest; and we beg to draw his attention to the rule he has put in the mouth of judge "A," who in his wrangle with his colleague "B" reminds the latter, on the authority of the schedule, that "all fruit must be ripe and fit for the table." We cannot conceive of any simple rule more fitted to form a base to the standard that is so much desiderated; and it is so generally appreciated that it finds a place in the schedule of every horticultural society of any consequence in the kingdom. Yet, notwithstanding, its excellence and fitness are quite ignored and set aside, not by judges, but very generally by exhibitors themselves, in the way in which collections especially are set up for competition. We have had to do with excellent exhibitions of fruit where nearly every collection should have been disqualified, had the test of ripeness or fitness for use been applied rigidly to the dishes severally. At nearly every show may be seen collections of fruit in which the superior excellence of one or two dishes is expected by the exhibitor to cover the deficiencies of the other dishes comprised in the collection. This is very like attempting to catch a prize by a "fluke," and certainly tends to reduce competition very much, as "Hortus" remarks, to "a question of luck" rather than an honourable striving for a mutually coveted distinction.

Space forbids our following the question further just now. We are content for the present with having presented it to the readers of the 'Gardener' in another and different light to what "Hortus" was pleased to place it in last month's impression. There is undoubtedly room for reform, but it is not necessary solely on one side. A little repression of a very general tendency to cupidity on the part of exhibitors would at least have the effect of reducing the difficulties that lie in the path of the judges considerably. HORTUS SECUNDUS.

INDIAN LETTER.

[As many young gardeners in this country contemplate India as their destination, and many are going to Tea-plantations there, we think the following quotation from a letter lately received from Northern Bengal may interest some of our readers.—ED.]

THERE are quantities of Orchids about, but many of them of little account. Vanda teres is very plentiful and fine. I measured some flowers 3¼ inches across. There are some Saccolabiums too,—S. guttatum giganteum, and another which is more plentiful, resembling guttatum, but with rather larger flowers and a more lax spike. I have got a fine bunch of it in full blow at the door of my bungalow just now. It was about as much as a man could carry on his head. It has 48 spikes. There are some very fine Ærides too, and Dendrobiums, but I have not seen any Cypripediums yet. There are some very pretty Ferns about, and very large tree varieties, and Lycopodiums. I have seen on some of the tulahs large quantities of ironstone lying on the surface, and apparently almost pure iron. It has all the appearance of having been melted; some of the pieces are large and unshapely, having the appearance of just having run out of some furnace in a liquid state, and others look like pieces of large cast-iron tubes that had been smashed to pieces. I believe all the tulahs here are the result of volcanic eruptions. We have three varieties of Tea in cultivation —the Chinese, the Jungali or Indigenous, and the Assam Hybrid. The Chinese is a small, hard-leaved variety, and is not a great favourite here. The Jungali

Digitized by Google

is the very opposite. It has very large soft leaves, about the size of a common Bay, and makes very good Tea. It grows wild in the forests here, where it attains the dimensions of a tree. The Assam Hybrid is supposed to be a cross between the Chinese and the Jungali, and is the favourite here. The tulahs are planted in lines, straight up and down, 6 feet by 3, but latterly they have been planted obliquely, 4 feet by four. Both these plans I entirely disapprove of, because in hoeing they always commence at the bottom and hoe upwards, so that the soil is gradually pulled down from the tulahs into the beils below, leaving the plants, in many instances, standing 2 or 3 feet above the level of the soil, with all the principal roots chopped off, and the consequence is that they are continually dying off. If the trees were planted in rows across the tulahs, horizontally, then they could be hoed well enough without pulling down the soil at all.

I will now give you a short account of our Tea-manufacturing. The first thing is the plucking. We take off the top bud, with the two small leaves below it, and that is called the Pekoe; then we take off about half of each leaf below, generally about three. We allow the shoots to have about five leaves before plucking them. The plucking is all done by women and children. When the bell rings, they bring in their baskets and get them weighed. They are paid at the rate of 4d. per six seers (12 lb.): 4d. is a day's wage, but in the plucking season, whatever more they can make they get. The next process is withering. It is all spread out on machans,—a sort of bamboo shelf arrangement; or in the sunshine, when there is any. It is then sifted, and all the different qualities of Tea separated. Then it is rolled by the hand until the leaves get a twist on them. It is then thrown into heaps to ferment, and when it gets the proper colour, it is thrown into a hot pan, where it is turned rapidly for a few minutes, then thrown on to the tables, and rolled a second time. After that it is put into trays, over a charcoal fire, and thoroughly dried. It is then passed through wire sieves, of different sizes according to sorts of Tea, and all the bad pieces picked out, such as hard leaves that have not coloured properly. So you see there is nothing very difficult in the process of Tea-making.

We are not altogether free from the inroads of considerable numbers of pests. The worst that I have yet come in contact with is a sort of rust-looking fungus or lichen, that attacks and spreads over the branches, something like the small grey lichen common on most smooth-barked trees. It is very destructive. It appears to commence its inroads during the cold season, by spreading on the young wood, and completely destroying the buds, so that the shoots that are affected very soon die. The wood, on cutting it, appears of a reddish colour, particularly near the buds. Trees that are affected by it appear as if they had been burned, the bare sticks showing above the green shoots below. The manager tells me that it is something new—that it has never appeared in this garden before; but I think, from the appearance of the plants, that is rather doubtful. Another enemy is red-spider, but fortunately it has not spread very far, but the plants that are affected—principally on the low ground—are bad enough. I expected the rains we have had would have put it away, but it still holds on as tenaciously as ever. However, I expect, when the regular rains set in, it will disappear. There is another sort of fungus that grows on the leaves, but I have not seen much of that. Then we have white scale, but it too is comparatively harmless. The white ants are most destructive; in some places they are even worse than the rust. They eat into the heart of the largest bushes, shelling them out as a rat would do a turnip. Then there are the crickets, which are particularly destructive on young plants, especially in nurseries. Still, with all

Digitized by Google

these enemies to contend against, it is astonishing how the plants yield, and especially when we take into account that in many places the ground is little more than half covered with bushes, devoid of about two-thirds of their roots. This country no doubt is extremely fertile.

I brought in some shoots of Vanda teres the other day, that had been blown down from some trees, and also some that I pulled down, and bound them with cane round some trees at my bungalow door, and now they are blooming profusely. Also some Dendrobiums and other things that bloomed before are now growing prodigiously, with no support but the bare bark of the tree.

AUCUBA JAPONICA AS AN UNDER SHRUB.

One of the most pleasing effects I have ever seen produced by this very useful shrub was in a hedge formed of it under some old trees and very old shrubs. The Portugal and Common Laurel had become drawn up and naked at the bottom under the trees. They grew by the side of a walk which passed underneath the grove of trees, and closer to the walk the Aucubas had been planted, and appeared to be quite at home under the dense shade of the trees and taller shrubs. They were very much less spotted and variegated than when grown in the open, but they formed a quite close hedge, 3 feet high, and had a very good effect, being feathered to the ground. In such a position they require to be constantly pruned, using only the pocket-knife, for shears cut and mutilate the leaves, and produce an unsightly effect. I may remark that the white of the leaves was far brighter in the shade than usual, and this enhanced their effect, in contrast to the dark leaves of the other evergreens. George Dawson.

[The Aucuba is an excellent shrub to plant in shade; and so is Cotoneaster microphylla, when kept clipped.—Ed.]

ROYAL HORTICULTURAL SOCIETY OF OTAGO.

[The following quotation from a New Zealand paper will serve to show the state of horticulture in that promising colony.—Ed.]

The second exhibition of the season in connection with this Society took place in Dunedin on the 15th of March. The rare exhibition of specimen plants was a decided advance upon those of all former occasions. There was a very good display of fruit, but the show of vegetables was rather limited owing to the unfavourable season. The greatest novelties in the floral exhibits were to be found among the fine-foliaged and rare plants. One especially, a Begonia grandis, was a magnificent plant, and excited much admiration. It was the finest specimen ever seen in Otago. It was 4½ feet through, with leaves fully 18 inches long. Next came the Sanchesia nobilis variegata, a native of the South Sea Islands, with large and singularly beautiful dark-red leaves fringed with gold. Then the Coleus Duke of Edinburgh. These three,

Digitized by Google

with that peculiarly handsome plant, Dracæna ferra rosea, also a native of the South Sea Islands, gained the first prize for ornamental foliage plants. About 6 P.M. the Hon. Mr M'Lean, accompanied by his Honour the Superintendent, visited the exhibition, and distributed the silver-medal prizes for the best-kept gardens.

THE BIRMINGHAM SHOW.

THE great Birmingham Show of the Royal Horticultural Society, of which so much was expected, is past, and people are busy settling its merits, and criticising it. Some of our readers, we know, were there, and many were not; all, we have no doubt, have read by this time the details through some printed medium. We cannot attempt a *resumé* of these again, as the subject is now getting old, and we took no notes to be printed; we shall only record our own impression of the Show generally, which may or may not be the correct one, or the one we ought to take. Ours was only a one-day view—the second.

The enjoyment of our only view from the highest peak of the Grampians was spoiled by a smart attack of toothache. The hearing of Handel's 'Messiah' has been marred by a stinging corn, though the boots were of the choicest fit; and no doubt rain and mud modified the impressions of many who went to enjoy the Birmingham Show.

Birmingham, under the best circumstances, has always appeared to us to want washing, and to occupy a position not very easily washed. The clouds were of the same opinion, in anticipation of the great influx of strangers, and sent the cleansing element in abundance, unfortunately to the inconvenience of those who were already clean. In spite of the rain, however, the Show has been a great success; but it would have been immensely greater had the weather proved favourable, patronised as it was by the clever and popular Prince Arthur in the midst of a rich and enterprising community.

A train from New Street Station deposited us at Aston, not by any means an inviting locality, where red letters and flags directed the way to the Park, if we had not chosen to follow the multitude. Secretly we hoped the Prince did not come by train, which of course he did not. It is a wonder why the executors of taste in decorations *will* make use of evergreens in midsummer. What a tawdry, forlorn aspect they wear after a few hours in the sun; half a mile of them looked perfectly pitiable this same month of June at Dorchester. The same was repeated at Birmingham to a less extent. With these reflections, and the care of our footsteps and umbrella, we arrived in front of an ancient castellated archway, built of a peculiar blue stone, the foundations of which must have given way in the inside, as the whole appeared to lean, like the Tower of Pisa, inwards. Suddenly a portion of the mason work appeared to flap with the wind, and revealed, even at some distance, its Cremorne style of architecture in painted canvas. Passing underneath this *imposing* barrier, we arrived in a sea of mud, which encompassed the entrance to the Show-ground, and in which cabs, omnibuses, and pedestrians were per necessity wading. Inside the gate, the aspect of affairs mended a good deal. Still, the surroundings were not hopeful. In front a distant view of tents and sheds was visible; on the left, a besmothered, thinly-planted ribbon-border to be; on the right, a pool or lake of water, with adjuncts of rather a tea-garden aspect. The first impression of the ground was not encouraging.

Digitized by Google

The great tent was the first on the way, and on entering, it was at once evident that there was something worth coming to see. A tolerably fair idea could be formed of the extent of the tent at once, and the general nature of its contents; it reminded us of the great show in London which inaugurated these provincial shows. One or two things were conspicuously awanting; for instance, the great Tree-Ferns and the splendid Azaleas of Turner and Veitch. Of course this was a month later. The eye, however, caught nothing which was not of the very best of its kind. Williams of Holloway was in front, as he always is, with fine collections of large plants; and the old names of Baines, Cole, and Dixon of Beverley were there with their huge, oft-repeated specimens. Among exotic Ferns, which were large and finely grown, we noted Davallia Mooreana. Foliage-plants as usual were a leading feature, including Palms. Dracæna Guilfoylei and regina were often repeated, both distinct and elegant plants for decoration; Croton undulatum and Youngii, Cossignia borbonica. There were some huge plants of Begonia of the Rex section, and Caladiums, of which Prince of Teck and Lady Burrell are distinct. An exceedingly fine specimen of Alocasia macrorhiza variegata was in a pot comparatively small; but we cannot go on particularising.

Of stove and greenhouse plants the Dipladenias were wonderfully grown and flowered, also Allamanda nobilis. The same must be said of the Ixoras, among which was the beautiful new Colei. Hard-wooded Heaths were marvels of size, health, and bloom. Eucharis amazonica was well represented, though not equal to the grand specimens shown in London. Show and Zonal Pelargoniums were very well exhibited, though not so fine as is to be seen sometimes further north.

The Roses were superb, as they always are from Paul, but impossible to see by the majority of visitors, being surrounded by crowds who appeard mesmerised by them: pity they were not arranged where they could have been more comeatable. The whole tent was a feast of good things, and laid out and arranged most masterly. The fruit was disappointing: Hamburg Grapes neither very large nor well coloured; one exhibitor showed Muscat of Alexandria well ripened and good every way: the collections were few. Pines few and not striking. Peaches only fair. Melons in quantity, and many as usual should not have been exhibited. Fruit of the Gamboge was shown by Messrs Osborn and Sons, Fulham, orange-coloured and egg-shaped. The show of Vegetables below par. Peas and Tomatoes good, and one bunch of Asparagus as good as any from France. Mushrooms open and large as saucers: query, were they genuine garden produce? They spoiled the look of at least one collection. Carter's prize-cup was won with small competition. We feel a doubt about any one firm of seedsmen offering a prize to public competition for the produce of their own particular seeds; it has a centralising appearance about it which does not bear out the spirit of liberality supposed to be involved. The Sooly qua Cucumber ought to take its place among monster Gourds; it is sufficiently coarse and ugly.

Cut-flowers were a very good feature. Herbaceous perennials well shown. Tender exotic flowers also fine shown and attractive, but could mostly be seen to better advantage on the plants in the great tent, consisting as they did of Allamandas, Heaths, Orchids, &c. The varieties of Achimenes shown were fine, the plants small but well grown; Williamsii was especially brilliant. Bronze and Gold Pelargoniums were largely shown; we noted Climax and Prince Arthur of Downie & Laird, also Marshal MacMahon. The class of Golden Tricolors is now much overloaded, the new ones all very fine. We noted,

Digitized by Google

however, Achievement, Prince of Wales, and Masterpiece; Macbeth is distinct, but rather dark. Mr Turner's four new show Pelargoniums are very distinct and fine, and ought to be in every collection.

One tent was devoted to hardy Ferns, the show of which was good, the plants in fine health; but they looked as if they had been brought into the tent and forgotten to be arranged; it was difficult to examine them without much determination. The table-decorations exhibited by gaslight were on the whole nicely done. There was a tendency to overcrowd—ten tables in all, and each partitioned off from the others, they appeared to be too cramped and small. Space, however, would be limited. We have seen it better done at York, space being given to each table. The decorations were, however, suggestive, the lighter-done ones the most appreciated. It is difficult to fall in with the idea of having the plants growing through the table-cloth with the pots underneath; suitable plants are easily chosen without having to adopt this deception.

Passing from the tents, the show had the appearance of being held in a marsh. The situation seemed altogether unsatisfactory, the ground rough and uneven; but with the help of planks and boards at the more frequented parts, visitors were able to navigate themselves to the various points of interest. We essayed to enter a court or garden of wire-work, but were beaten back by an avalanche of red mud propelled by a large broom. The stand was on a great scale, a large rosary occupying the centre, and included everything in the shape of wire-work for a garden. Making a circuit of the ground, one passed stands devoted to all sorts of garden appliances. We expected to see a larger show of implements in Birmingham. Fellows & Bute had a good exhibition of their new Anglo-American lawn-mower, which gained the medal. We were much pleased with it, and bespoke one on the spot. Further on was a great stand like a fortification of rustic pottery-ware, for ornamenting, we suppose, the garden,—stumps of trees done in the same material, blocks of wood ditto, with models, no doubt, of the heads and features of defunct horticultural worthies—we did not recognise any of the modern ones—done in the modern tobacco-pipe school of design, the whole glittering with a rich brown glaze, *jardinets* and *jardinières:* the names are tempting; no doubt such things are ornaments for a garden, but not to our taste.

Boilers were in great force. In addition to the old familiar ones the tubulars in variety, there was Steven's, conspicuous from its size and strength; it seems capable of a great amount of hard work. Several were on the ground like dismounted locomotives. Green exhibited a handy and powerful-looking boiler. There were a choice of movable apparatus for heating greenhouses; all seemed neat and handy, and well adapted for the purpose. Our boiler expectations were great, and we hoped the great Birmingham trials were to settle the how and who; but we really don't yet know what, if anything, has been settled. There was a large boiler-intrenchment with some half-dozen competitors in a row, backed up by earth-works, like amateur coke-ovens, with an erection of pipes suspended in air, behind which each in turn, we suppose, had to heat with whatever else was attached. Much of the caloric must have been wasted in the desert air, especially when the rain fell on the pipes. There seemed a great deal of boiler, and not much to be boiled. Altogether, such trials, we should think, would be very inconclusive; we should be shy of pinning our faith on the result. Of hothouses there was a fair exhibition, from Gilbert's plant-protector of a foot square to Howitt's Gothic conservatory. The plant-protectors must be in favour somewhere—a modest assistant under difficulties.

Digitized by Google

The Howitt house is a well-finished structure, strong and light; opaque materials seem reduced to a minimum in its construction. Ayre's imperishable hothouses have not the same finish in detail: the porous cement slabs with hollow panels for holding water are a most happy idea; the ventilation is simple and effective; no putty is used,—but we are not sure about iron and cement being indestructible. Cranston's seems a useful amateur's house, and Parham's light and ingenious, but we should be doubtful about Peach-blossom with 10° frost outside. On the whole, implements were but scantily represented.

The intellectual feast at the congress we resolved not to hear, having altered our programme to one day—certain to read and digest the various interesting papers at our leisure, and discussion being uncertain.

Several enterprising nurserymen had exhibits of hardy shrubs and trees at considerable risk and expense; they deserve the thanks of the public for lifting and bringing such plants at such a season for the instruction of those interested in trees and shrubs. Smith of Worcester had a well-furnished and neatly-finished tent of choice things. Standish of Ascot and several local nurserymen also showed large specimens in the open air of ornamental trees and shrubs.

If any visitor felt hunger, there were ample means of appeasing it; or if thirsty, we know there was good tea to be found, and it was in great demand. The familiar and less safe artillery of corks drawing demonstrated that something stronger than tea could be enjoyed.

This will be looked back to as the best show on the whole since 1866, and a success in the face of circumstances usually ruinous to a show, and confirming the old proverb, that where there is a will there is a way.

THE SQUIRE'S GARDENER.

A PEEP AT THE R.H.S. SHOW AT BIRMINGHAM.

NOTHING could be more unfortunate than the weather which the exhibition met with at Birmingham. Thunder and lightning, rain and hail, followed each other in succession, and sometimes were all present at once. The walks and tents were ankle-deep in mud. Planks had to be laid down from tent to tent on which to walk. Yet, in spite of all these disagreeables, the ladies of Birmingham turned out in thousands to view and admire the hosts of interesting plants, flowers, and other objects of horticultural interest that were to be seen in the various tents. What struck one at first sight was the magnificence of the display of plants and cut-flowers, including Roses, and the poor, meagre display of fruit. I was asked several times if I could account for the scarcity of fruit, and its comparatively low quality, in a country like England, where fine fruit abounds; and I suggested that it was probable the prizes offered were not of greater value than the fruit that had to be staged with only the hope of getting a prize, that at the end of a four days' show such fruit would be comparatively worthless, and that prize-taking was made a commercial matter, and would only be attempted when there was a fair chance of its being more profitable than disposing of the fruit in market, in the cases of those who sell their fruit—now by no means a small number, when dukes and lords may be said to have converted their gardens into regular nurseries and market-gardens, where a dozen Geraniums or a pennyworth of Parsley can be purchased of "his Grace" or "his Lordship," as the case may be, and as thankfully sup-

Digitized by Google

plied as by any greengrocer in Covent Garden; others who consume their fruit at home prefer to have it fresh gathered, and will not send it to a four-days' show.

The remedy for the very defective displays of fruit that are to be seen at these exhibitions would be to increase the money value of the prizes, and to allow the fruit to be removed after the second day of the exhibition. At the Birmingham show there could scarcely be said to be more than two dishes of good Grapes, one of these being Muscats, two lots of average Pines, and the same number of dishes of Peaches. Now no one will deny that this was very remarkable at an exhibition which has, or ought to have, all fruit-growing England at its back. There must be something wrong in the management of this very important department of horticulture, and the sooner it is remedied the better. At the exhibition of the Royal Caledonian Society in Edinburgh on the 10th of July, there was five times the quantity of fruit shown at Birmingham, and the quality infinitely better; while in all other respects the exhibition was the veriest pigmy compared with that at Birmingham. This, to my mind, settles the point that the R.H.S. does not give fruit-growers the same encouragement it gives plant-growers, which I conceive to be a great mistake, for no part of an exhibition has greater attractions than a table of fine fruit, if one may judge from the crowds that gather round it. Amongst novelties, those that struck me most were a small and singular plant that covered the surface of the pot as with golden beads, which on closer inspection proved to be myriads of little yellow fruit growing on a procumbent plant called Nertera scampenalles, a native of the high mountains of New Zealand, and therefore hardy, and likely to be a very valuable plant for decorative purposes both on the dinner-table and the parterre. Another was a variegated variety of Abies Douglasii, raised from seed by Mr Fowler of Castle-Kennedy: than this plant I never saw anything more striking in its way. It grows as freely as the tree generally does, and all the growths of the present year are white, and continue so till autumn, and then they become green. When this tree is extensively planted, as it is sure to be, it will look like trees with a covering of snow on them, and this in summer will produce a very striking effect. In small pots it will prove a most effective plant for indoor decoration, and it will even look well on the dinner-table. Amongst the many fine plants of recent introduction exhibited by Messrs Veitch, Croton undulatum deserves special mention as being a grand plant. Amongst tricolor Geraniums, Empress, exhibited by Charles Kimberley, nurseryman, Stoke, near Coventry, deserves notice as being of great excellence. Downie, Laird, & Laing exhibited some splendid bronze Zonales.

Amongst what may be termed the machinery of horticulture, I took special note of the boilers. Cannell's is no doubt an economical boiler as far as the consumption of fuel is concerned, but being made of cast-iron is liable to give way, as that metal too often does. The best boiler on the ground, all things considered, was the "Whitly Court Boiler," designed, I believe, by Mr Westland. One of these I purchased on the spot to heat 4000 feet of 4-inch pipes. It is made of malleable iron; and from its construction it exposes more surface to the flame than any other I know. In comparison with it, the tubular boilers can never be named either for economy or efficiency. I did not then or since learn to which boiler the prize was awarded; the "Whitly Court Boiler" did not seem to be on trial.

Of hothouses there were many examples, some of them of a very flimsy character, more noteworthy for the ingenuity displayed in making their means

Digitized by Google

of ventilation complicated and inefficient than anything else. This latter remark applies with greatest force to the one that got the first prize. The only real step made out of the beaten track was by W. P. Ayres, who exhibited his "Imperishable Hot-houses;" and, as far as materials go, he has all but realised the title he has given them. I like his houses, and, for many purposes, his cement stages. I did not see a prize-ticket on his house, but no doubt it got one, for it was about the only step in the right direction that I saw in this department. Amongst the smaller appliances of horticulture, I saw nothing worthy of note; and I beat a retreat amidst thunder and rain, but glad to learn that there were 16,000 tickets at a shilling each sold for the following day, and in consequence the exhibition would be a financial success, as it was in every other respect, excepting the weather and the fruit,—the former beyond the control of man, the latter within his reach. W. T.

Calendar.

KITCHEN-GARDEN.

If such crops as Kale, Brussels Sprouts, Savoys, Broccoli, &c., which were planted early and thickly (with the view of transplanting them on ground, after it was cleared, with Turnips, Peas, or Potatoes), should now have attention, lift them with all the roots and earth they will carry, place carefully in well-prepared ground, and water them thoroughly if rain is not approaching. If suitable, every alternate plant may be lifted; and they will be all the better for it this wet season, by preparing them to stand the winter, under the same principle as laying down Broccolis. Let every space be filled with something useful for winter use. Plant Cabbage thickly, so that every other plant may be cut out when ready, leaving a full crop on the ground. Sow more Cabbage to stand over the winter; those sown about the middle of the month will be ready for planting in south of England as early as those sown in July in cold districts of Scotland. Sow Red Dutch for pickling; but this is only when they are wanted large; sowings of March come in good time, with small useful heads, finely coloured. Sow Cauliflower for planting under hand-lights, &c. Walcheren, Early London, and Dwarf Erfurt are good kinds for the purpose. Sow plenty of Prickly Spinach; it is seldom seen in too large quantities during the winter months. A damp or a very exposed position for Spinach is greatly against its wellbeing in the cold months. On wet land we would draw ridges (as when Potatoes are earthed up) and sow the seed on the top: high ridges, where ground can be spared, do well for any winter crop. Lettuce and Endive may now be sown in quantity. Crops of these require careful thinning late in the season, and the thinnings to be planted on well-worked ground; it need not be so rich as for summer crops. We strongly object to fixing a rule for the distance between plants, as some do; on rich, substantial soil the produce will be double the size of that on poor sandy ground. Soot dusted round the necks of the plants, and the roots watered several times with lime-water, invariably keeps slugs in check. Wood-ashes and small-coal ashes also make their quarters uncomfortable. We hear that slugs and snails are unusually destructive in some places this season. Give Celery plenty of water. This season has been favourable to the growth of Celery and other moisture-loving plants. Manure-water may be given liberally. Earth up a portion of the Celery crop for early supply, if not already done. Simpson's collars will be found very useful, especially where labour and time are scarce. A hard, battered surface is often the cause of Celery "bolting." Keep a stock of Parsley in view for winter supply. A ridge or sloping border is a good spot for it to stand the winter on. The thinnings of later sowings may yet be planted, and come in useful. Sow Chervil as

Digitized by Google

required; also Radishes, Mustard, and Cress. A good breadth of Golden and American Cress will come in useful during autumn. Continue to protect seeds from birds. They come in from the harvest fields ready to devour all small seeds. Top Beans, to induce them to pod. When Peas are growing high above the stakes they may be topped back, to induce them to branch out and flower. Early Horn Carrots may still be sown for drawing young. Scarlet Runners growing heavy for the stakes may be topped back. Those grown as dwarfs should be regularly topped in, and the old pods regularly picked off, so that they may continue to bear. Vegetable Marrows, Ridge Cucumbers, and Ghirkins may now be mulched with long manure or grass. In localities where frost is expected early, a temporary framework may be erected round a portion of the plants, which could be covered in a short time with mats or other material. Potatoes may be lifted when the tops are ripe, and the tubers placed in sand; the ground can be turned to good account. Leeks growing in drills may be earthed up; they do well with manure-water. Tripoli Onions may be sown about the middle of the month. Every crop should have hoe and prong used among them as frequently as possible. Weeds will grow less vigorous now than they have done; but if it continues wet, hand-picking is the only remedy. Attend to thinning shoots of Tomatoes; where the fruit has been allowed to set too thickly, thinning should be done at once. Manure-water suits them when bearing heavy crops, especially if the plants are in pots. Collect materials for Mushrooms.

M. T.

FORCING DEPARTMENT.

Pines.—Suckers produced by those plants which have ripened their fruit, will now be strong and ready to pot or plant out in beds. A common error in the management of these is to crowd them too closely together, and as a consequence they become drawn and debilitated before winter; and no after-treatment can grow them into such fine sturdy plants as they are capable of being made when allowed plenty of room from the very first. In potting these, put the smallest into 6-inch and the largest into 7-inch pots, using a friable turfy loam with a little bone-meal mixed in it. Pot firmly, and do not water till roots are formed, after which water them, and avoid shading them or over-syringing them, which excites a weakly unsatisfactory growth. Air them freely when they begin to grow. All plants intended to start into fruit early next season, should have their pots thoroughly filled with roots by the end of the month, and their growth well matured. And they will now require careful watering. No more should be given towards the end of the month than is just sufficient to prevent their getting any check; and the night temperature should be lowered a few degrees, with the view of gradually putting them to rest in the end of September, otherwise their starting to ripen fruit in May will not be so certain. If any of these have pushed suckers, as they occasionally do, from the lower part of the plants, remove them as soon as noticed. That portion of the stock intended to make a growth in early spring, and then start to succeed the earliest, may still be encouraged to grow as directed for last month. In warm sultry weather, such as often occurs in August, air all growing stock freely, and see that they do not become crowded; rather sacrifice a few plants than harm the whole stock for the sake of a few extra plants. Winter-fruiters that have now finished blooming should have a moist atmosphere, always shutting up early with sun-heat in the afternoon. Apply no more fire-heat than is sufficient to prevent the temperature sinking below 75° at night. When they require water at the root, give guano and ordinary manure-water in a weak state alternately, and every time they are watered, in preference to stronger doses occasionally. The soil should be kept constantly moist, but not what is known in gardening by the term "wet." In preference to very frequent syringing over-head, keep up the air moisture by sprinkling the paths and surface of the plunging material. Where there is a stock of suckers that have been produced by plants which ripened fruit in March and April, see that they do not become pot-bound, but shift them when well rooted, and they will form a desirable succession to earlier winter sorts. Avoid over-potting them or any portion

Digitized by Google

of the stock, as nothing is gained, but more uncertainty in fruiting, by very large pots. Now is a good time to collect soil for next year's potting, selecting it from an old pasture if possible, taking only the top 4 inches, and stacking it in narrow stacks in an open shed, if such can be afforded it. A loam that is neither very heavy nor very light is the best for Pines.

Grapes.—Pot-vines that are intended to fruit early next season should now be perfectly ripe, and almost ready to shed their foliage. If the canes are not brown and hard, expose them to full sun and a circulation of dry warm air, to produce ripeness as early as possible. Do not let them make any lateral growths; rub off every attempt at fresh growth. Those that are well ripened may be removed out-doors to a rather cool place, but avoid exposing them in a windy position, where their foliage will be prematurely destroyed. Young Vines planted early this season will have pretty well filled the house with young growths and foliage. Those intended for permanent Vines, and to be cut down at pruning-time, may, if they have not already done so, be allowed to ramble till they cover all their space with foliage. Those intended to be fruited as supers next season should not be allowed so to ramble, but their laterals and main shoots should be pinched with a view to concentration of growth and development of fruit-bearing eyes. Keep all vineries, where the fruit is quite ripe, cool and well aired; wasps and flies are apt to be very destructive on Grapes at this season. A strip of hexagon netting, or perforated zinc fixed over the openings, effectually keeps them out, which is better than allowing them in and then trapping them. Should the weather be dry, late Vines that are still swelling, and about to commence colouring, should be attended to with water at the root; give the borders, if dry, a thorough soaking, and mulch with half-decayed stable-manure. Apply a little fire-heat if there should be a succession of damp dull days, so as to prevent that sluggish stagnation of atmosphere so undesirable for Vines at all times, but especially when colouring, and do not forget the chink of air all night. Where highly-coloured Muscats are valued as they should be, push or tie aside if necessary some of the leaves, so as to let the sun at the bunches. This should, however, not be done till they have changed to yellowness to a certain extent. Syringe Vines from which the fruit is all cut occasionally, to prevent red-spider, and keep the foliage clean. Keep them as cool as possible, and if the earliest house shows any signs of making fresh lateral growth, remove them immediately they are noticed. Should early vineries require painting or repairing, or any alteration in the heating, now is a good time to get such attended to, as the lights can now be removed for a time without injury to the Vines. Any Vines which have their roots further from the surface of the border than is desirable, and from which the fruit has just been cut, may now have the inert surface-soil removed down to the roots, and a coating of fresh turfy loam mixed with a little rotten manure and a few bones put over them: into this they have time to thrust fresh fibres before they shed their leaves; and next season they will derive much benefit from the operation, which, if attended to for a few years, will be the means of getting a fresh brood of surface roots established.

Peaches. — Supply crops swelling off in late houses with copious waterings, should the weather be dry, until they begin to ripen. Then expose every fruit fully to light and air, by pushing aside the leaves where they shade the fruit. Where there are more fruit ripening than are enough for demand, a good way is to adopt the fruiterer's plan of gathering before they are quite ripe, and they will then keep a good many days and ripen gradually. We have kept ripe Peaches fourteen days by placing them in close tin boxes in the ice-house. Do not neglect trees from which fruit are all gathered. If the border be dry, water it, and avoid the starving and roasting into maturity system. Look carefully over them, and if there are more shoots than necessary, remove them at once, and so afford those left more room, and a better chance of ripening well and forming good fruit-buds. Syringe them freely three or four times weekly, to prevent their being attacked with red-spider; and where that pest has appeared, mix a handful of flour of sulphur with the water. Keep the early house cool, and if necessary for repairs, the sashes, if movable, may be taken off them.

Figs.—Supply all trees, whether in

Digitized by Google

pots or restricted borders, that are swelling off a crop, with copious waterings of manure-water. The way to have fine Figs is to restrict the roots, and feed vigorously once the trees have become thoroughly fruitful. A moist atmosphere is also of first importance, and except when the fruit are ripening, the trees should be syringed regularly every day. But when the fruit are ripening, a circulation of dry air is necessary to high flavour. Do not gather the fruit till the juice begins to ooze from its cracked skin, and let the fruit be gathered in the morning and sent to table in the evening, when it is quite cool, else the real flavour will not be appreciable. Early trees, from which the second crop is all gathered, should be carefully attended to in the way of watering and syringing to keep the foliage healthy to the last. If there is more wood than is necessary for next season's bearing, remove it now as recommended in the case of Peaches. Avoid forcing a third crop from them if possible; they are never so fine, and it is exhausting work on the trees.

Melons.—Those grown in ordinary dung-frames should have their fruit elevated above the foliage, and exposed to the full sun while ripening. Sprinkle the foliage every afternoon at shutting-up time. Those growing in Melon-houses in trellis should have the surface of the borders mulched with rotten manure immediately the fruit are set. See that fruit swelling off get a heavy watering or two between the time they are set and fully grown, after which avoid heavy watering, or the fruit may burst. Attend to the impregnation of later crops, as they come into bloom; more plants may be planted early this month for late crops.

Cucumbers.—Sow about the middle of the month for winter crops. Those that have been bearing heavily all summer, and that show signs of exhaustion, may now be slightly cut in, all the fruit removed, and the border top-dressed with such as old Mushroom-bed dung; and with a rather high temperature they will push vigorously, and soon be in full bearing again, and will keep up a supply till the winter Cucumbers begin to bear. Supply those in full bearing with waterings of manure-water, and syringe regularly at shutting-up time, and continue to stop and train as directed in former Calendars.

Strawberries in Pots.—If any portion of these are yet to shift into their fruiting-pots, lose no time in attending to them, as directed in former Calendars. Those shifted a month ago will now be growing freely, and in dry weather will require being carefully watered. Occasional waterings of manure and clear soot-water will assist their growth. If they are becoming crowded, give them more room, and keep all runners pinched from them as soon as formed, and keep the pots free from weeds. If standing on beds of ashes or gravel, and the roots are leaving the pots, lift the pots and rub off the roots that appear at the bottom of the pots, as it is most desirable that their rooting should be confined to the pots; and, consequently, it is best to have them standing on boards or trellises, as formerly recommended.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

Digitized by Google

We regret that we are compelled for want of space to hold several papers over till next month. We beg to thank our correspondents for these contributions, which shall have our earliest attention.

B. W.—If you appreciate flavour more than appearance, grow Black Jamaica. Charlotte Rothschild and Smooth Cayenne are far more showy Pines, and are excellent "swellers" in winter. They are very juicy, and of a brisk flavour—more acid than the first named. Prince Albert is also an excellent winter Pine—fine in flavour and handsome, but will not keep so long after being ripe as the former two. The Queen is the best for summer supply.

F. I.—Add to your list of winter-flowering plants Bouvardia jasminiflora and B. Hogarth—most useful and effective winter-flowering plants, and bear forcing well. Cypripedium insignis does well in a cool house, and lasts a long time in flower. You might also succeed with Epiphyllums: see an article in our July issue.

A. B.—Certainly go over them, and pick off all seed-pods immediately they shed their blooms. Gloire de Dijon is an excellent stock for Maréchal Niel. Souvenir de Malmaison is one of the very best on its own roots for beds. It is a very continuous bloomer. A loamy soil well manured with cow-dung is best. Top-dress with manure, and water liberally with liquid manure in dry seasons.

W. S.—We never recommend nurserymen. You are perfectly safe in the hands of any respectable well-known firm.

L. N.—Undoubtedly you are, like many more, underpaid. If you are certain that you are giving your employer satisfaction, state your case openly, but respectfully, and you will more than likely succeed. Employers are generally sufficiently alive to their own interest not to part with a suitable servant for a few more shillings weekly.

P. M'K.—If you are so infested with birds, and not allowed to shoot them, nor provided with nets to protect your fruit, we do not see that you can be held responsible for a supply.

F. R.—The third of the quantity you name is quite sufficient.

A Subscriber.—We doubt it is a hopeless case with you, from the description you give. This cold, wet, sunless season is likely to prove most disastrous to Gladiolus in cold heavy soils. Yours may live, but if the foliage is dying off yellow now, so are the roots, and your bulbs will be weak and immature.

F. W.—Remove all plants requiring water out of the vinery. Put front and top air in on all fine days, leaving a little on at top all night. On dull wet days do not give front air, and keep a little heat in the pipes. This has been a most unfavourable summer for thoroughly ripening and colouring Grapes.

A Subscriber.—You cannot grow two better nor more free-bearing Figs than old Brown Turkey and Raby Castle. If you wish to limit yourself to two sorts, these combine more points of merit than any other two we can name, and are suitable either for pot-culture or for being planted out.

S. A. W.—It appears to us that your plants are suffering from overdoses of water and defective drainage. Turn them out, and rectify and increase the drainage if it is imperfect. Use rather small clean crocks.

Digitized by Google

O. N.—Prince Albert Rhubarb is an excellent variety for early forcing. Use it for the earliest, and Victoria for later crops. They may be planted yet, but will not do much good this year?

POLYANTHUS.—Would you or any of the 'Gardener' readers kindly say where any *really good* or named Polyanthus are to be seen, as out of different packets of seed from several nurserymen, and producing hundreds of plants, nothing very satisfactory has been produced. POLLY.

AN OLD DELVER.—The soil which you have sent we consider too light and gravelly for Vine-borders, and its being destitute of fibre makes it still less suitable. If you could mix it in equal proportions with a more heavy loamy soil, it would do pretty well. You should have a man to every acre of cultivated ground.

C. BENNET.—1 Adiantum formosum; 2 Davalia canariensis; 3 not recognisable; 4 Cyrtomium falcatam.



Digitized by Google

THE GARDENER.

SEPTEMBER 1872.

THE ROSES AND THE ROSE-SHOWS OF THE YEAR.

THE couch of the rosarian is beautifully supposed by the poetical mind to be a bed of Roses. I regret to inform the poetical mind that from these Roses high-stepping beetles and earwigs of an extra size come forth when the rosarian sleeps, to make their promenade upon his countenance, and to vex him with troublous dreams. They are Roses with thorny stalks; and when the rosarian turns him restlessly, *their* spines become exceedingly unpleasant *to his*, just as the grits and crumbs of that cake from home, of which we ate in our cubicle a parting slice,

> "Oft in the stilly night,
> Ere slumber's chain had bound us,"

afterwards disturbed our boyhood's sleep. Uneasy rests the head that wears a crown of Roses. The proprietor of that head is also the owner of an immense stud of nightmares, and these are perpetually running away with him into bogs, down precipices, and over spiked palisades, until "awaking with a start," or rather with (if the poetical mind will permit the homely expression) a bump, he rejoices to find that it was but a dream.

Alas! not always a dream, because (to drop the ideal) the anxious fears and sad previsions of the Rose-grower are but too often realised. When he has done all that a loving forethought can do,—thoroughly drained and dug his soil, liberally enriched it with farmyard manure, planted it with the healthiest plants he could procure, sought and scrunched the vernal grub, strengthened with stake against boisterous wind, watered in drought, and watched and tended always—yea, even

Digitized by Google

when this tender supervision seems all but sure of its reward, when the older trees are making vigorous flower-bearing shoots, and the "bud" breaks from the maiden Briar, "almost as thick, sir, as your little finger," his remembrance of the past makes him dread the future, and too often he goes into his garden to find the tops of his Potatoes black and limp and drooping, to speak anything but respectfully of the old poets, and their "wretched humbug about sweet smiling May," and to know, though to the eyes there is as yet no sign of it, that grievous hurt is done unto his Roses.

So it happened, as many a time before, on the 19th night of May last. The rosarian awoke (perhaps from a dream that the royal lady whom he wooed had first expressed her regret that a queen could not be married to a commoner, and that she was engaged, in consequence, to somebody else)—awoke with an impression that some thief had stolen his blankets; and looking from window, beheld the outer scene all silvered o'er with frost. His head sank down to his pillow, and his spirit to despair; and as he dozed dismally, the spectral figure of Flora, with her golden locks in twisted curl-papers, and all the glowing colour of her cheeks gone thence into her nose, looked on him piteously, and tried to speak, but only chattered with her teeth,

> E'en such a form, so faint, so spiritless,
> So dull, so dead in look, so woe-begone,
> Drew Priam's curtain in the dead of night,
> And would have told him half his buds were black,
> But Priam,

being already convinced of the fact, did not require the information.

I believe that this calamitous visitation affected, more or less injuriously, all the principal Rose-gardens in Great Britain. As a censor at the chief exhibitions, I have of course scrutinised very closely the blooms shown by our most successful growers, and, with very few exceptions, the evil influence of that cruel frost might be traced in the collections sent for competition. The grandeur of size, the perfect symmetrical shape, the exquisite purity and brilliancy of colour, which the Rose attains when the development goes on without a check, from the breaking of the "bud" in the stock to the full expansion of the flower, these, in combination, were rarely visible. There was size without symmetry, or the Roses which had form and brilliancy were small. Out of some scores of collections, which I examined judicially, I remember only five in which the Roses were really good throughout —namely, in a 72 shown by Mr Cant of Colchester, a 48 by Mr Turner of Slough, a 24 by Mr Keynes of Salisbury (three trusses), and in the same number of single blooms sent by Mr Prince of Oxford, and by the Rev. J. M. Camm of Monkton Wyld. The grand collection of

Digitized by Google

Messrs Paul & Son, of the Old Nurseries, at Cheshunt, to which last year no less than seventy first prizes were awarded, was excluded from its former precedence at the earlier shows; and though it has received no harm beyond a temporary check, and has since sent winning contributions to the later exhibitions, to Saffron Waldon, Ely, &c., that 19th night of May brought precious loss to one of the most earnest, honourable, and victorious of our Rosicrucian knights.

Well, there is one great advantage in these trying seasons,—they tell us which of our Roses can endure them best, which of our favourites most deserve our love, or prove themselves to be our friends in adversity. That this knowledge may be extended to others—to those who have not had the opportunities of acquiring it for themselves—I have noted the names of those Roses which have weathered the storm most bravely. He who proposes to bud or to buy, may safely place them on his list.

Of the white and blush varieties, the Baroness Rothschild, La France, and Marguerite de St Amand are the best. The last is an old and constant favourite, but the two former are glorious acquisitions of more recent introduction. I have heard the Baroness termed by a rural rosist as "a bit stuntier than he loiked 'em;" but if she is stout in habit, she is stout in heart too, and in flower and in foliage always beautiful. La France, also, though I feared that the Chinese blood in her veins would hardly give her constitution for our climate, seems to be alike reliable, as abundant as she is admirable. I must give her precedence over her rival, Mademoiselle Eugenie Verdier, although the latter is a charming Rose, and should be found in all rosaries. Marquise de Montemart and Thyra Hammerich must also have a place therein. Climbing Devoniensis, which requires a wall, has been very large and perfect; and though its first blooms come too early for the shows, it has now proved itself to be hardy (though it may be partially injured by extreme frost), and ought to be in every collection. Madame Rivers, Louise Magnan, and Mademoiselle Bonnaire, are beautiful white Roses, a wee wanting in size; but those which I have previously named are the best of the light varieties. Madame Vidot is in some seasons most lovely, but cannot be trusted in all.

Of pink Roses, the best which I have seen this year, at the shows and in the garden, have been Abel Grand, Centifolia Rosea, Comtesse de Chabrillant, Edouard Morren, Emilie Hausburg, Louise Peyronney, Madame Boll, Madame Fillion, Madame Therese Levet, Marguerite Dombrain, Marquise de Castellane, Miss Poole, Monsieur Noman (a glorious Rose, in pot or in parterre), Princess Christian, Princess Mary of Cambridge, and the lovely Tea Rose, Souvenir d'un Ami.

In the red, crimson, and deeper-coloured varieties I have most

Digitized by Google

admired the following:—Alfred Colomb, Annie Wood, Beauty of Waltham, Charles Lefebvre, Comtesse d'Oxford (a real addition), Dupuy Jamain (wonderful for its violet tint), Dr Andry, Duke of Edinburgh, François Louvat, Horace Vernet, Louis Van Houtte (La-charme,—(another decided acquisition,—Madame Victor Verdier, Marie Rady, Monsieur Boncennes, Pierre Notting, Prince Camille de Rohan, and Xavier Olibo.

Of the new Roses sent out this year from the English importers no examples have been shown, such as to exhibit the varieties in their true character; but great expectations have been formed of the following:—Baronne Louise Uxkull, Docteur de Chalus, Etienne Levet, Jeanne Gros, Lyonnaise, Madame George Schwartz, President Thiers, and Richard Wallace.

Of three or four new English varieties I can speak (having seen them) with confidence, and, I rejoice to add, with praise.

The first new English Rose which I met with this season, at the June exhibition of the Royal Botanic Society, was "Annie Laxton." It was raised from seed by one of our most zealous rosarians, Mr Thomas Laxton of Stamford, who has persevered through many years of disappointment, and now begins to reap the sure harvest of a patient love. "Annie Laxton" is a very pretty, well-formed, and roseate Rose, and was justly honoured with a first-class certificate of merit at the show to which I have referred. It is "sent out" by Mr George Paul, of the Old Nurseries at Cheshunt. May Mr Laxton be as successful with the beautiful as he has been with the useful! and such men assuredly deserve the gratitude and good wishes of all. To produce new flowers for the eye and new vegetables for the palate, may not be considered by some as a mission of much importance; to me it seems as though he who did this for his fellow-men was a far greater benefactor than nine-tenths of the palavering philanthropists—

> "Men whom the music of their own sweet voice
> Doth ravish like enchanting harmony,"

who never left the world richer than they found it by a petal or a potato.

I was made acquainted with new English Rose No. 2 at the Provincial Show of the Royal Horticultural Society at Birmingham, by its papa and chaperon, Mr Curtis, of the Devon Rosary, Torquay, the well-known rosist and historian of Roses, who there introduced the fair *debutanté* to the British public. "Bessie Johnson" (so called, I believe, after the daughter of Mr Johnson, one of the editors of the 'Journal of Horticulture') was originally "a sport" from Abel Grand, and has all the vigour and excellent habit of that well-known Rose. But the flowers are quite distinct and different, more like Caroline de Sansales, or the beautiful Baroness Rothschild, though not so large as

Digitized by Google

the latter. There is still a great want of light-coloured Hybrid Perpetual Roses, and "Bessie Johnson" is, consequently, a welcome acquisition. As a garden Rose, for the front row in collections for show, and for bouquets, it will be very valuable. As an old Rose-grower, as one of the censors, and as a member of the Floral Committee, I asked for a first-class certificate, which it well deserved, but which was refused by the member of the R. H. S. Council dominant on that occasion. My disappointment, and my doubts which of us was right were not of long duration; for when Mr Turner of Slough ordered 50 plants of the Rose, and Mr Standish, and other nurserymen, bought as soon as they saw, I could only feel commiseration for the small minority who did not admire "Bessie Johnson;" and I have only this to add of her, that she is one of the most fragrant Roses in existence.

Two other new English Roses, both raised from seed by Mr George Paul, remain to be noticed. The "Cheshunt Hybrid" is a very singular and striking Rose. At first sight it seems to belong to the Hybrid Perpetual family, and to be of the Victor Verdier, Henri Ledechaux, and Countess of Oxford type; but on examination it has all the characteristics in wood, leaf, and habit of the Tea-scented China Rose. The flower and the foliage are both beautiful, and the growth is as luxuriant as that of Blairii 2—than which we have no more exuberant Rose. It has received a first-class certificate, and "Cheshunt Hybrid" (pleasing in every point except the name, which might be advantageously changed to Beauty of Cheshunt) cannot fail to be a general favourite.

Need I say how happy I should be if a similar popularity should be extended to the next and last new English Rose upon my list—I mean, to "Reynolds Hole," so named by the raiser in recognition of our long and hearty friendship? Many years ago another of the floral brotherhood, whom I very highly esteem, was pleased to pay me a similar compliment; but the "Reynolds Hole" sent out by John Standish did not realise his expectations, and, with some hundreds of other Roses, has all but gone out of cultivation; so that I rejoice to be again replaced and represented in the world of Roses by a new and very promising variety. "Reynolds Hole," a seedling from the Duke of Edinburgh, also raised at Cheshunt, much resembles Louis Van Houtte. It is a Rose of great substance (like its synonym), and of a very rich deep crimson complexion, such as the original might be supposed to assume when carrying a box of Roses up the Crystal Palace steps, when bowling to his boy beneath a burning sun, when hearing some remark made in disparagement of floral propensities or of floral men; or when told, as he hopes to be told, that "Reynolds Hole" has found a home and a welcome with all those who love the Rose. S. R. H.

Digitized by Google

NOTES ON HARDY CONIFERS.

TAXODIUM.

IN this genus there are only two species hardy enough to warrant their being recommended for outdoor planting in Britain. Both are handsome and desirable ornamental trees, and, though somewhat susceptible to the influence of early autumn and late spring frosts, may be grown with more or less success in most districts, and prove effective and distinct additions to any collections of decorative trees.

Distichum.—*The deciduous Cypress.*—This eminently beautiful Conifer was introduced into Europe so early as 1640, from North America, where it is found wild over a vast surface of country, extending from the Delaware to Florida, and close to the sea in Virginia and Maryland, growing for the most part in low-lying swamps, and on the moist banks of rivers in dense forests, and attaining heights of from 80 to 150 feet. Though rarely seen in this country higher than from 30 to 40 feet, there are few more graceful trees in cultivation, its warm green tint and light feathery appearance in summer, along with the brilliant red of its decaying leaves in autumn, presenting a striking and pleasing contrast with the other trees usually associated with it, and producing the happiest landscape effects. While young it has a close, bushy, conical habit of growth branched to the ground, the lower branches afterwards gradually dying off, and the tree assuming a flat-headed shape. In either state it is a beautiful object on the lawn or kept grounds, and ought to be far more extensively planted than it has been hitherto. It will grow with great luxuriance in low-lying damp situations, but is in such extremely liable to injury from frost, and should consequently be planted in well-drained, airy, but sheltered places, where it will be protected from high winds, and be enabled to ripen its wood thoroughly before winter sets in, as well as be less liable to start into growth too early in spring. The variety "Pendulum" is a distinct and beautiful form, with a graceful, pendent habit, but otherwise resembling the species. Both are worthy of admission to any collection of ornamental trees.

Sempervirens—*Sequoia gigantea* of some botanists (the Californian red-wood tree)—was found first by Douglas on the north-west coast of America in 1796, and by subsequent explorers in great abundance all over Upper California, from whence it was first introduced in 1845. It is an evergreen tree of gigantic proportions, attaining heights only surpassed by its near ally the Wellingtonia, individuals being frequently met with from 200 to 250 feet high, with circumferences of from 20 to 30 feet. Where this tree succeeds it is a grand specimen lawn-plant, with leaves and branches very much resembling

Digitized by Google

the Yew, and a broad conical habit of growth, but its tendency to grow in late autumn, through which it so frequently loses its leading shoot, and gets otherwise damaged by frost, must always be a great barrier to that popularity which its other merits as a decorative tree would insure it among landscape-gardeners. It is, however, handsome enough to be worthy of a trial in even a limited collection, and will in most cases, where the circumstances are even moderately favourable, prove all that could be desired. A well-drained soil, not too rich, an aspect somewhat shaded from the direct rays of the sun, and a situation well sheltered from violent winds, must invariably be chosen for this tree, as being the best calculated to insure success in its cultivation.

CRYPTOMERIA.

A genus of fine evergreens, for which we are indebted to the indefatigable and successful botanical collector, Mr Fortune, who first sent home seeds from Japan in 1844. They have, as was then anticipated, proved quite hardy enough for our climate in the open air, and most valuable acquisitions to the list of ornamental trees.

Japonica—*the Japan Cedar.*—This elegant species is found not only in Japan, but in great abundance over an extensive area in the north of China, growing most luxuriantly in damp soils, with a hard and rocky substratum, at elevations of from 500 to 1200 feet above the sea-level, and rising to heights of from 60 to 100 feet. It is here a distinct-looking, symmetrical tree, with a sharp conical habit of growth, densely branched from the ground, making an admirable lawn or avenue specimen. The leaves, which are short and needle-shaped, cover the shoots very thickly, and are of a fine bright green colour. It is found to thrive best where it is sheltered, and where the soil is stiff and rich, with the subsoil well drained. There are several varieties of this interesting tree in cultivation, the most distinct and useful of which is *Lobbii*—or, as it is sometimes called, *Viridis*—with a dwarfer and much more compact habit of growth than the species, rendering it a very pretty miniature tree for small lawns or gardens, while the foliage is of a brighter green. It is, like the species, quite hardy, and deserving of extensive cultivation. *Nana*, as its name implies, is a very dwarf variety, forming a curious flat-headed bush from 2 to 3 feet high; also quite hardy and useful for planting on or about rockeries.

Elegans.—Introduced in 1863 from Japan, where it forms a dwarf tree or shrub rarely exceeding 30 feet high, growing naturally on high but sheltered places, in rich soil, with a warm, porous subsoil. It has withstood the winters of the past few years with perfect safety, and is

Digitized by Google

found to grow freely in most soils if moderately rich and well drained, and the situation sheltered from high winds. It is undoubtedly one of the finest of our recently introduced conifers; and must, as its merits become known, be largely cultivated. The habit is somewhat broadly conical, the branchlets drooping at the extremities, giving the plant a weeping appearance; the leaves are much longer than *Japonica*, of a light green in summer, changing in autumn and winter to a brownish green or bronze, giving it quite a distinct and striking appearance, and rendering it invaluable as a contrast to most other plants.

HUGH FRASER.

THE GLOXINIA.

IT may with propriety be said of the Gloxinia, "A good old plant of the good old times;" venerable for its antiquity, and admired for the unsurpassed richness of its handsome flowers, besides other striking characteristics; namely, its large massive lanceolate leaves of velvet texture, many of which are beautifully veined, while others are plain, but all furnished with foliage of the most pleasing shades of green.

G. Maculata and Speciosa, the progenitors of a now numberless progeny, were both introduced into Europe in 1739 from South America. Since that period Gloxinias have always held their own in the esteem of the cultivator.

In the warm rather close shade, where the sun's glare is softened by the glass being shaded by means of light scrim or other thin shading, the Gloxinia will luxuriate. Cold draughts, and the habit often practised of dashing water over them out of a widely-perforated rose, are very injurious. This is a sure means of rotting the flowers and blotching the foliage while yet undeveloped. On the whole, while they delight in an abundant supply of water at the root, when in full growth syringing should never be practised, further than a light dewing at intervals after excessive dry heat; but a humid warm atmosphere is to be preferred, both to grow them well in, and to keep them in healthy rich foliage.

Culture from the Leaves.—There are various methods followed in multiplying by this means. Some make incisions in the main veins on the lower surface of the leaves, and lay them flat on a bed of silver-sand in the propagating-house. Over the cuts small pebbles are placed, to prevent the leaf shifting until roots are formed; and in the course of time small crowns are formed, and each makes separate plants, which will flower the following summer if carefully ripened, and preserved

Digitized by Google

over the winter. Another, and I think a better plan, is to cut up the leaves into slips, following the direction of the veins, and running the knife out without damage to the margin. This operation should be performed with a very keen-edged knife, so that the tissue of the leaves is not lacerated. By this means the leaves may be divided into a number of wedge-like pieces, narrowing to the bases. These are inserted into pots filled with silver-sand intermixed with a little peat-soil; and after moistening the body of the compost cover with a bell-glass, or place the pots inside the glass-case, if the house is furnished with such. Keep moderately close, and never wet the leaves while applying water to the roots, at the same time being careful that the cuttings do not suffer from damp. Under such favourable conditions roots will soon be formed, to be succeeded by bulbs and minute leaves; but it is the best plan to pot off singly as soon as well rooted, so that the progress of the two latter is not checked, and that nice plump bulbs may be produced before the fall of the year. After the rooted portions of the leaves have been put separately into pots, have them watered and returned to the place they formerly occupied, and give them the same watchful attendance as hitherto, not once allowing the soil to get dried up, which would permanently cripple their growth, until indications of their going to rest are shown at the end of summer. No more water will be required after such symptoms, except enough to prevent the soil from getting dust-dry, and thereby causing the bulbs to get shrivelled up.

General Attention.—Early in February following examine the bulbs, after having wintered them in a warm dryish place, and in all probability signs of fresh action will be seen in some of them. Those should at once be repotted into pots of somewhat greater dimensions, using a compost of equal parts loam, leaf-mould, and silver-sand, adding a little well-reduced cow-manure, but only a little: sift the whole through a half-inch sieve, crock the pots abundantly, and cover the drainage with rotten moss, then fill with the compost to the rim of the pot, and place a little heap of silver-sand on the centre of each pot, and insert the bulbs amongst the sand: rather more than cover the bulbs, and press the soil moderately firm together; and when all have been potted, plunge them into bottom-heat of 70°, but do not give any water for some days: water has a tendency to rot the bulbs while yet in a partially inactive state.

When the plants begin to grow kindly, they may then be freely watered, always heating the water to the temperature of the soil. Allow abundant root-accommodation by fresh shifts, when the roots have reached the outside of the balls of soil, and admit air cautiously; at the same time they should not be keep wholly without air if the

Digitized by Google

weather is at all favourable. By pursuing these simple instructions, handsome plants will reward the efforts of the cultivator.

To conclude, I will endeavour to describe the appearance of a few varieties which I think worthy of cultivation. Referring first to those with erect flowers :—

Star.—This has large perfectly-formed flowers ; the prevailing colour is white, the lips are bordered with a broad band of delicate lilac. The white, which forms the centre of the lips, is strikingly pretty, appearing as if brushed over with snow.

Monsieur Barrillett.—White, with a broad irregular band of bright blue extending beyond the lips into the throat in distinct feather-like streaks. The lobes or lips are exquisitely rounded, and their edges reflex so much as to be hid from view.

Cinderella.—Another of similar construction as regards outline, but otherwise dissimilar in appearance. The flowers are white in the main, with lips painted delicate violet, laced by a faint narrow threading around the margin of the lips, and stamped deep blue where the lobes and the corolla unite.

Belle de Menlan.—Has its throat (from the stamens to the lips) inside and outside pure white, of wax-like consistency. The lobes are margined violet, deepening into violet-purple where the corolla divides.

Argus.—Flowers moderately large, nicely proportioned, white bordered with lilac, but stained deep purple over the union of the lobes with the corolla.

Rio Fernando.—Shows the lower division of the throat white, freckled thinly by very minute specks of lively brown, while its throat and lips are dense blue overlaid by brilliant purple; while the exterior white exhibits a blush hue, caused by the intensity of the dark colour within.

Acton.—Green, ground-colour glistening white, the throat wholly mottled over by thickly-set exceedingly small specks of violet—with a narrow margin of violet faintly present encircling the lips, and blending into the violet-purple which covers the major portion of them. Through or traced over this again appear branching veins of crimson purple.

Monsieur de Vasconcellas.—Exhibits a most transient look from the extreme delicacy of its shades, but withal it is not wanting in texture when closely scrutinised. In form it is of perfect bell-form, the lips are unusually widely separated, even from the point where they unite with the corolla. Beginning at the base, the entire inner surface is overspread by lovely veins traced out by means of minute mottlings of blue, which become less distinct near the bottom of the cup. These veins take their rise from primary ones that extend in straight lines from the base of the corolla. The surface of the lips is suffused with blue and white, interspersed by mottlings of dull deep blue. These, with a regular broad margin of pale mauve, describe in a measure this fine variety.

VARIETIES WITH DROOPING FLOWERS.

Mina.—Her flowers are exceedingly large, with well-expanded tube or throat, and lips beautifully reflexed. Colour white, with faint rays of delicate vermillion closely over-scattered by minute specks of dullish crimson. This combination reaches about one-third the interior from the base upwards, where it joins in almost circular nicety a body of the most brilliant crimson veiled by delicate blush ; this extends to the lips, where it breaks into streaks of scarlet crimson interpersed by veins of marble white. The richness of this flower baffles descrip-

Digitized by Google

tion; and when we add that it is also agreeably fragrant, it makes it the more acceptable.

Mexicana.—Very large; flowers white, stained by rosy crimson at the lower part of the lobes. These, with a delicate suffusion of blush-pink present on the exterior, are its chief distinctions. Extra good.

Dr Indienne.—Is also furnished with excellent qualities; one distinguishing feature is the straight lines of closely-set specks of dull crimson-brown traced from the middle of the lobes to where they disappear deep in the throat. Around that point where the corolla is cleft into divisions, an undulating zone is traced by densely-massed specks of purple, watered over by porcelain blue, which is also the margin colour: outside the zone again, over this margin, exists a network of veins of deeper tint.

Rose d'Amour.—Markings are about equally portioned between white and rose-pink. Flowers large, bold, of extra diameter. Throat wide, and lobes much reflexed. The tube is distinctly divided between pink and white. Along the line which separates the two colours exists a suffusion of blush, while the under segment or lobe is a deeper and more brilliant rose.

Novelty.—Solid in substance, though the flowers are not so large as many others, but being a good greenhouse sort, it deserves mention. Lips furnished with a broad porcelain border; outer portion of tube brushed with mauve where the sun plays on it. The throat is a splendid solid white from the lips to its stamens, without a stain, while it produces flowers in profusion.

Mr Bosrig.—Rose-colour, lower lips stained and flamed with glowing maroon crimson. Nice conservatory variety.

Hermone Rose.—This charming sort has the upper part of its white flowers suffused blush, and around the centre of the lobes there are zones of violet, rose, and purple: each in a measure may be traced in lines around the face of the flower, although the colours mingle with their broken edges.

Paulone Varonaise.—Flowers waxy rose-pink, with a mottled band of white reaching from the bottom of the throat, situated on the centre of lower petal, and crowned by rich scarlet-crimson at the higher extremity of the tube. This is also a good kind for a cool house.

Souvenir de Brackert.—Is an erect flowering sort, one of the cream. Its interior for some distance up is beautifully rayed with white and dullish crimson alternately; these are overspread by small crimson freckles profusely present. The upper portion shows a glossy velvet appearance, where a combination of crimson, violet, and maroon mingle into a delightful whole. The lips are margined with rose, which runs into the deeper colours imperceptibly; and they are boldly rounded on the brow of the lobes, while their margins reflex.

A. Kerr.

HINTS FOR AMATEURS.—SEPTEMBER.

The gathering of ripening fruits will now require attention: this should be done when dry, if possible. If Plums, Peaches, &c. should be open to the attacks of birds, wasps, &c., they had better be taken before quite soft; and though they may not be as high-flavoured as when left longer on the trees, they are better than when picked or punctured. Plums which are very thick on the trees may be thinned, using the thinnings for the kitchen; if done piecemeal, they can be used up without much

Digitized by Google

loss. When storing Apples and Pears they should be placed on clean shelves or sliding drawers, where the air can circulate freely among them; and after they have been stored a week or two, the air can be taken off, and the structure kept close and dark. When the pips of Apples and Pears change colour, they are considered fit for gathering. Wall-trees should now be kept free from growths; and if foliage is very thick, it may be thinned out with advantage to the wood which is to supply fruit next year. Any trees making too much growth, and not likely to ripen the wood, the roots may be examined at one side; and if any are going straight down, they may be brought near the surface or shortened back; and if this does not stop rank growth, the other half of the tree may be done in a month or two hence.

Plant Strawberries, and water them well if necessary: continued dribblings prevent the ripening of the crowns. If plants are scarce, crowns may be divided, planting the most vigorous of them; if treated well, they will bear plentifully next year. Plantations may be trimmed —clearing each plant of its fellow, taking away all litter and runners. Manure, if required, can be forked into the surface, but the roots should be left uninjured.

Lawns and walks will now require much attention to keep them free from worm-casts and weeds. Lime-water puts an end to worms for a time, and strong salt-water destroys weeds; mowing and sweeping will take up much time. Flower-beds will require frequent hand-picking, taking out decaying foliage, cutting off decaying petals (the whole flower need not be taken if not unsightly), trimming in edgings to proper form; top Geraniums and thin leaves to let the flowers come so that they can be seen; the want of sun is much against free flowering. Propagating should be finished as early as possible; there is no hurry with Calceolarias. Harden off Verbenas and other small cuttings, to get them fit to stand the winter. Tender things, such as Heliotropes, Ageratums, Lantanias, &c., should not have to stand the risk of frost. All things of value that are to be lifted must have timely attention, in case frost destroys them. When potting them, dung should not be used: clean healthy loam, with a little leaf-mould and sand, answers well for most kinds of bedding things. Strip off a quantity of the leaves, trim in the roots a little, and put them in pots only large enough to keep the roots without cramming them: water them moderately, and keep them airy and free from damp: a little dry heat in dull weather will do good. Take notes of what might be done to improve the bedding next season. This has been a season in which few of the finer bedding-plants have been seen to advantage. Good things, which might have been first-rate if the weather had been favourable, should not be hastily destroyed. Bulb-

Digitized by Google

planting may soon have attention. Hyacinths, Tulips, Narcissus, Jonquils, Scillas, Crocuses, Snowdrops, &c., may be potted off for early work. Early Roman Hyacinths are valuable for very early forcing; from three to seven may be placed in pots of sizes in the usual way, covered till they spring a little, and then put into a little warmth; they may be had from November till the larger sorts come into flower. When potting bulbs, care must be taken not to bury the bulbs more than three parts of them in the pots, which should be well drained. The soil may be good loam, a little rotten manure and sand well mixed; but manure-water can supply all that is necessary without manure in the soil. Place the pots on a firm surface, and cover them with sand, leaf-mould, or old tan, about 4 inches deep. When the bulbs have made roots, and the crowns have grown an inch or less, they may be placed under glass, giving plenty of light and air till they are forced, or taken where they are to flower. Carnations which have rooted may be lifted and potted, or planted into frames, using good loam and sand free from wire-worm. Prevent Auriculas from being drenched with rain; let them stand on a hard surface, and use lights to keep off wet: water carefully when necessary. Chrysanthemums will now be well forward: they should be staked before too late; a good surfacing of wholesome rich soil will do them good: manure-water may be liberally supplied as the plants advance towards their flowering-time. They should be in their flowering quarters before frost may be expected. Lift those by degrees which are growing on the open borders; if not checked by injuring the roots, the plants will show little of the change: shading and sprinkling a few days after they are potted may be necessary. Cinerarias and Calceolarias should have plenty of pot-room, good drainage, and not be coddled in close damp structures: cutting dry winds are also injurious. Primulas will now be well forward; they like plenty of air and free drainage. All hardwooded greenhouse plants may now be prepared for taking under glass; those which have not well ripened their growths should have plenty of sun and dry air. Before placing them for the winter, let the pots be well washed, the drainage made right, and a little clean surfacing given, making it rather firm: give water in the morning now, and abundance when necessary.

M. T.

JUDGING AT EXHIBITIONS.

We are not so entirely unaccustomed to forecast the possible consequences of our remarks, as not to be aware that our former observations on this subject were such as to furnish ample material for sarcasm and innuendo by any one who, like your correspondent, "Hortus

Digitized by Google

Secundus," might be disposed in that way. We are glad, however, that he read our paper, if he did not relish it; and we wish to assure him that his insinuations are entirely appreciated. We risked our opinion on the matter, not by any means expecting to please every one. "Hortus Secundus" makes the most of the hasty assumption that we were "smarting under the humilation of a recent defeat." Are we to account for the irritation which our remarks seem to have caused him in the same way; *i.e.*, that the "cap fitted"? For his special comfort and peace of mind, let us inform him that our remarks had no reference to anything which happened within the last twelve months. The paper in question was penned even longer ago than that, but it was not deemed advisable to publish it at the time, for obvious reasons: further, we were not interested parties in the incidents related; and when we recast the paper for the July number of the 'Gardener,' we were not in a particularly spiteful mood on our own account, for just in front of us, when we wrote, were more than either one or two conspicuous crimson cards, recording in flourishing type our latest entries and triumphs in every principal class at one of the greatest exhibitions in one of the most considerable of the "three divisions of the kingdom," which, it appears, your correspondent has been peregrinating—in a judicial capacity, we infer—for a most respectable number of years. We shall be uncommonly pleased to satisfy "Hortus Secundus" on this point, for it would not surprise us to learn that one who is "forced to the conclusion" that a person must necessarily be actuated by selfish motives in raising a question of general interest, should also doubt our veracity. Let us hope that by the time he has taken two or three more turns round the three kingdoms—and might we suggest the Isle of *Man*?—he will entertain a more amiable opinion of human nature generally. Our paper was sent to the 'Gardener' at the time it was, simply because it was considered suitable for the occasion, otherwise "Hortus Secundus's" surmises and well-intentioned strictures would doubtless have been very telling; but

> "The best-laid schemes o' mice and men
> Gang aft a-gley."

Having thus troubled your readers with a somewhat personal explanation, for which they are indebted to your censorious correspondent, we would beg to make a few more remarks on Judges and Judging, since "Hortus Secundus" has procured us the opportunity. It seems we are charged with bringing "bold and sweeping accusations of incompetency and ignorance" against judges generally, without proposing any remedial measures ourselves. We were under the delusion that while exonerating judges as a rule from any supposition of unfair dealings, we had expressed our doubts of their ability in all cases to

Digitized by Google

discharge their duties properly—citing a few of the many instances we could give to prove this—and that the whole drift of our remarks went to show the necessity of choosing capable men, and choosing men for their work. This much, at least, committees can do, if no authoritative body will erect some standard of excellence for a guide in all cases. It is of no use mincing the matter, and we have no intention of receding from our position. The fact of the matter is, the committees of many of the most flourishing Horticultural Societies contain little or none of the practical element, and that little is probably overawed by the influential majority: else why is it that, year after year, men are appointed to judge fruit, we shall say, who have not only no reputation for skill in that department, but in many cases do not know the commoner varieties they are called upon to pass judgment, nor the ordinary points of excellence in the subjects before them? We once saw the prize for White Grapes in the month of June given to some bunches of Muscats, in which nearly every berry was stoneless—abortions, in fact, about the size of Black Currants; while unusually excellent examples of Chasselas Musque and Royal Muscadine were passed over. The judging in the other classes, as might be expected, was equally satisfactory. No one can judge an extensive and varied assortment of fruit unless he has a familiar acquaintance with it, and an extensive knowledge of varieties. There are plenty who possess these qualifications, and it is the duty of committees to find them, and not to content themselves year after year with men who have no other claim to the office of judge, than that they are the acquaintance of some member of the committee, or a member's friend.

We are not going to make any suggestions as to what ought to constitute the points of excellence in judging fruit, but we would say a word on the subject of ripeness, which, we admit, ought to be insisted upon as an essential point in all cases. At the same time, we would not think of passing over a meritorious exhibit because some of the subjects were not ripe enough, to give the prize to another which had no other recommendation, which is often done. The proper course in a case of this kind would be to disqualify entirely, particularly if the judge was too scrupulous about ripeness, in which case he would find his duties much easier, for in many cases half the fruit exhibited is not ripe, especially at the early shows. Exhibitors have frequently just reason for complaining on this head, for while a shade of greenness may have thrown him out of a place altogether, he finds the same considerations entirely overlooked in another class, because every dish in it would probably set one's teeth on edge. What is required in a judge under such circumstances, or indeed on any occasion, is a fair

Digitized by Google

share of common-sense and a knowledge of his business; when these conditions have been fulfilled, we cannot say that we have ever seen much reason for complaint.

Let not your readers think that we desire to represent exhibitors as an immaculate race, while finding fault with the judges. We had intended to speak of them also at some future time, but your correspondent, Mr M'William, has fully anticipated us, and we are content to leave the subject in his hands. HORTUS.

MELON CULTURE.

NO. III.

IN MELON-HOUSES TRAINED ON WIRES NEAR THE GLASS.

IN this case the first consideration is the shape and sizes of houses, as well as their aspect. And as in the case of the early forcing of all fruits in winter, early spring, and autumn, lean-to houses with a due south aspect are decidedly the best for Melons. For summer culture span-roofed houses running north and south may be considered the best. We have, however, no difficulty with summer and early autumn crops in the north aspect of houses running east and west. Indeed, the difference only consists in the desirable one of the crop from those on the north forming a succession to those on the south aspect. This, however, only holds good in the case of those not planted before May, nor ripened after the middle of October. The best arrangement in the case of those who have only a Melon-house of limited extent, and who at the same time desire to have Melons continuously, say from the end of May to November, is to produce their earliest and latest crops from the Melon-house, and to fill up the interval with a summer supply from dung frames or pits, in which case we decidedly advise the lean-to form, as shown and described in connection with the culture of Cucumbers in June, page 282; and where a supply is required only from July till the middle of October, the span-roofed house is best; and it is desirable to have it divided into three successional compartments of equal proportions. Although we have succeeded in bringing on three successional crops in one long division perfectly well, yet these crops would be better in separate divisions, inasmuch as when the Melons planted for the first and second crops are ripe, these compartments can be more successfully and conveniently used for anything else—such, for instance, as Tomatoes that have been grown in pots in the open air, and many other things besides. When in more than one compartment, the heating should be arranged so as to be able to heat sufficiently

Digitized by Google

all at once, or to heat each separately; and also that the bottom and top heat-supplying pipes can be worked independent of each other. Although great blunders have now and again been committed in glazing such houses with obscure glass, it need scarcely, at this period of horticulture, be necessary to warn against such glass in the case of all forcing-houses intended for tropical fruits.

It will be seen from the sections of the house we recommend that the bed for the soil is 18 inches deep. This depth may not be necessary for very early and late forcing, but for crops in the heat of summer we recommend a depth of soil of 12 to 14 inches, according as the loam may be lighter or more adhesive in texture, and having a decided objection to laying the loam on the pavement without an intervening layer of some more open material, such as leaves, to the depth of 4 inches; 18 inches give sufficient room for these depths of materials. We have always noticed that a body of close soil laid on smooth stone or wooden surfaces, without some material to act as drainage, becomes soured and inert next these surfaces. The side ventilators, whether they be in the form of glass upright lights or wooden ventilators in the side walls, should have perforated zinc nailed over the openings, to moderate the entrance of cold air when such is required; and the openings should be either directly under or opposite the hot-water pipes, so that the air be so far heated in entering the house. Unless it be in summer weather, and more especially when the fruit are setting or ripening, we do not recommend front or side ventilation. Our general aversion to very small houses, where a steady and high temperature has to be maintained, is as strong in the case of Melons as in that of forcing Vines and Peaches; and consequently we recommend something more extensive than a place that can just be crept into, which is in every respect inconvenient and undesirable.

We recommend a greater depth of soil for Melon-houses where the plants are more fully surrounded by light and air than in a dung-bed, and for the same reason it should be a little richer, and certainly not less retentive; and for summer crops we have always put all the soil required in the beds before the Melons were planted. In the case of early crops in Melon-houses we recommend a mean between that for which directions have been given for dung-frames; and which is, to fill in the soil at three times as the roots extend.

Little need be added on preparing the plants for the Melon-house trellis system of training, as the only difference between it and that recommended for the quickest system of fruiting in the dung-bed is, that in the Melon-house they are trained to wires near the glass, and in the latter along the surface of the soil. As soon as plants in 4- or 5-inch pots

Digitized by Google

(we use the smaller for spring and the larger for summer plants, having in this case a single plant in a pot) are 8 or 9 inches high, with the soil well occupied but not matted with roots, and the soil is warm in the beds, they are ready for planting; one plant every 2 feet is sufficient, but not too thick for this one-stem system of training. The plants should be put in perpendicular with the first wire at the front or side of the house, and tied to a stake till it reaches the wire. In summer planting we always settle the soil about the balls with water at 85° to 90°. Immediately they are planted, the balls being moderately moist when planted, I seldom find that shading is necessary, unless it be when a continuance of dull weather is succeeded by brilliant sunshine, when a thin shade is applied, but only till the plants can do without it. When the hot-water pipes are in front and close to the plants it is always best to screen each plant by a thin piece of board from the drying influence of the pipes, until it is at least fairly established. Another precaution in planting is to keep the plant raised above the general level of the bed by placing a ring of smooth round stones, flints, or pieces of charcoal, about 6 inches in circumference, round the plant. This we recommend as a provision against the not unfrequent cankering or damping of the stems just at the surface of the soil, which, when thus elevated, and not watered within the protecting circle, is not so likely to be troublesome.

It is a most difficult thing in all cases to give definite rules, as far as frequency or the reverse is concerned, for watering. In this case it must depend, as in nearly all others, on the state of the weather, and to some extent on the lightness or heaviness of the soil. We make it a rule to water Melon-beds as seldom, but as thoroughly when required, as possible. Suffice it to say that Melon-plants should never flag from over-dryness of the soil, nor the bed be allowed to crack, otherwise the plants and crop are sure to suffer, the foliage will get yellow and sickly, and become a prey to red-spider. With bottom-heat derived from hot-water pipes the tendency of the soil to become dry is greater than on the dung-bed, consequently more water is required, and the necessity for thorough soakings when it is supplied is more urgent. Except, perhaps, in the height of summer, two or three good waterings with the ordinary sprinklings before the fruit are set, and as many after that stage, are sufficient to bring the crop to maturity. As soon as the crop is set we always mulch the surface of the bed with rather more than an inch of short manure, which prevents evaporation, the bed from cracking, nourishes the crop, and is in all respects preferable to more frequent watering. After the fruit are all set, sheep or cow manure water is beneficial.

The bottom-heat should range from 80° to 85°, with the temperature

Digitized by Google

of the air in early spring at 70° at night, and 75° when the weather becomes more genial, and less fire-heat is required to keep the temperature up; with sun-heat by day a rise of 10° to 15° may be allowed. The moisture of the air must be regulated according as the weather is light or dull; in the former case, with frosty nights, the moisture must be greater than in the latter, and sufficient to prevent the atmosphere from feeling dry on entering the house. Except when they are in bloom and setting, gentle syringings are more frequently required in Melon-houses than in frames; and every afternoon, when the day is light, and a maximum of air has been admitted, a gentle syringing is very refreshing to the plants. In the morning the walks, walls, and paths should be damped, but not the plants themselves, as under bright sun they are apt to suffer when moisture is hanging about the foliage.

Ventilation, in the earlier stages of their growth particularly, must be very carefully managed. Sudden draughts of cold air are to be avoided, and the temperature should never be allowed to reach its maximum before air is given. It should be attended to by degrees till 12 o'clock, and reduced by degrees as the sun declines in power. And in dull mild weather avoid by all means keeping the house close and over-moist, under which circumstances the plants grow rapidly and with less consolidation, and therefore suffer, or require too much shading when the weather changes and becomes more bright. We are not an advocate for much front or side ventilation early in the season, when there is a great difference between the internal and external temperatures. Top air under such circumstances is sufficient to effect that change of air which is required. When the fruit are setting and ripening are the only times that we give front air, even in summer, unless the weather be exceptionally hot and calm.

The impregnation of the fruit requires the same attention in Melon-houses as in frames, only the operation is less frequently a failure. Indeed, there is next to no uncertainty attendant on it, unless in the case of very early forcing, when the setting process is not quite so free. In training and stopping the plants we generally adopt the close-stopping system—that is, to restrain the growth of the plants within the limits of the allotted space for each by pinching off the growths constantly two joints beyond the fruit, and leaving those shoots on which there is no fruit to grow sufficiently to cover the whole of the trellis or wires with foliage, without being crowded. A different system is pursued successfully by others—namely, to allow the plants to grow more at will, and set the first fruit that shows irrespective of their being simultaneous, or nearly so, over the whole plant. In this way a more rambling growth is allowed, and fruit set at intervals as they show

Digitized by Google

themselves; and thus fewer Melons are ripened at once, but a longer succession is derived from one set of plants. In the case of those who have only a few lights to devote to Melons, the practice has much to recommend it; but where there is room for succession on the more restricted system, we like to see a good crop coming forward at once. And even when Melons in one compartment are all planted within ten or twelve days, it is singular the difference there is in the time of their ripening and the succession they on that account keep up.

Very early forcing is much more certain with good Melon-houses than in dung-beds; and in some cases the seed is sown the end of November, and the plants planted in the fruiting-house the first week of January. This, however, is not a practice to be recommended in the case of the inexperienced grower, for even with the best of appliances there is much careful balancing of circumstances required. But so early a start is the exception, not the rule; and in some cases these early crops are produced in pots. January and February may be more generally named as the times at which Melon-culture even in Melon-houses is commenced; and all other things being equal, those who start them ripen fruit in May and June, before which time the flavour of Melons is only second-rate. Later in the season they of course come to maturity in less time.

The same remarks regarding the ripening of the fruit which have already been made need not be repeated here; only we would just remark that we do not countenance the great drying-at-the-root system in summer crops that is sometimes practised. We give more air, and allow the light to play freely about the fruit, but avoid starving them. Even if it did improve the flavour, such treatment would be against other fruits which have not just arrived at the finishing-point. And it is indispensable to quality in Melons that the foliage be preserved intact till they perfect their crop.

When grown in houses thus, the fruits should be supported as soon as they show that there is an undue strain upon the stem. This is an unnatural attitude for the Melon, and they require support. We prefer small square pieces of common garden-net or hexagon netting with a piece of cord, or, what is better, an elastic band at each corner, so that as the fruit expand the support yields sufficiently not to support it overmuch. Square pieces of porcelain have been used and recommended for this, but we do not approve of them, as moisture gathers more or less about the crown of the Melon when it rests on such supports; and disfigures it. This does not apply to the supporting material we have recommended.

The varieties in cultivation are so numerous, and every district has its favourites more or less peculiar to themselves, that there is

Digitized by Google

perhaps more variety of opinion and less recognition of any standard varieties among growers of the Melon than in the case of any other fruit. From our own experience in widely different localities and soils, we are inclined to think that certain kinds do better in some districts than others. D. T.

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

CLERODENDRONS.

This is a fine, handsome, and effective genus of flowering-plants. They bloom in great profusion, and can be had in bloom in any stage; but large plants are most effective, and are very useful for cut flowers mixed with Fern-fronds in glasses. C. Balfourii and all the climbing varieties are good for planting out in prepared borders of equal parts of lumpy peat, fibry loam, and silver-sand, with a sprinkling of charcoal well mixed. For planting, select nice healthy plants, and before planting them out, pick round the ball with a sharp-pointed stick to liberate a few of the young roots, so that they will be the more ready to take hold of the fresh soil. Gently press the soil round the ball, then give a good watering with tepid water. This ought to last it till root-action has commenced, after which at intervals copious waterings should be given when required, with regular syringings daily, and they will make rapid growths, which should be attended to in the way of tying them to the trellis or whatever there is to train them to. When beginning to flower, the syringing should be discontinued, but watering at the roots should be carefully attended to, else red-spider will make its appearance. When done flowering, gradually withdraw water, but not to that extent that the plants will suffer. Keep them quiet through the winter months. When the days begin to lengthen, give more water and heat, and they will soon start, and make ground plants the second season. Plants grown in 12-inch pots, trained to trellises, do well in a vinery until beginning to show flower, when, if taken to the warm end of the conservatory, they will open their flowers and last a long time. When done blooming withhold water, but not so that the plants suffer. They will winter in a dry airy place, where the temperature does not fall below 45° in the depth of winter. C. fallax and C. Kempferii are two grand plants when well done, having a fine effect in the greenhouse in the autumn months, and remain a long time in bloom when properly hardened previously. They do not require so much attention and time as the climbing varieties. If strong and vigorous, they require no support; the compost which suits the climbing varieties is equally

Digitized by Google

good for these, with the addition of some old cow-dung. When the plants begin to open their flowers, they are greatly benefited by manure-waterings. The same treatment in winter and spring recommended for the climbing varieties suits these.

ERYTHRÌNA OR CORAL TREE.

These are splendid decorative plants of easy growth, requiring a temperature of 65°, with plenty of moisture in their early stages. A compost of equal parts of good fibry loam and peat, rather rough, with a good portion of old cow-dung put through a half-inch sieve, and a sprinkling of sand, well mixed together, grows them well. In spring, if the plants are young, encourage them by liberal shifts whenever required, syringing several times a-day, as they are very subject to red-spider. A little bottom-heat hastens their progress into large plants, which are very imposing objects. When the flowers are beginning to open, let them be taken to an intermediate house for a few days before being put into the conservatory, where they will stand for a long time in perfection. After the blooming is past, place them in a little dry heat, gradually withholding water to get them thoroughly ripened, when they may be cut down and placed in any spot where the frost is kept from them until the following spring, when they ought to be started by shaking them out, reducing the ball, replacing in well-drained pots, giving larger shifts as required, till put into their blooming-pots, which should be 12 inch. When this gets full of roots, give liberal waterings with manure-water until the flowering is past, when the same treatment will suit them as the previous year. Cuttings root easily if put under a bell-glass in leaf and sand, with a brisk bottom-heat. E. Crista-galli and E. laurifolia, planted in a warm sheltered corner of the shrubberies, do well, but should have a little protection through the sharpest of the winter.

TABERNÆMONTANA CORONARIA (FLORE PLENO).

This and several other varieties of this most valuable genus of plants are almost indispensable where a large display of stove flowering-plants is kept up; not alone for their beauty and sweet scent, but the blooms for button-holes have not many equals. The Gardenias, which they resemble very much, we consider are not more desirable. Starting in spring with nice healthy plants, most of them will by this time be either in bloom or showing buds. A mixture of fibry loam, rough peat, and silver-sand, with a little charcoal, all well mixed together, suits them well. If a nice bottom-heat can be given them, about 75°, with the same atmospheric temperature, with plenty of moisture in the house and daily syringings, a start will soon be made; also another shift will be required, for which use the same compost

Digitized by Google

as before, replacing them in their old quarters. When they fairly get hold of the fresh soil, the points may be pinched out of a few of the plants, which will have two advantages: they will make better plants sooner than those not so treated, and it will make them later in flowering, so that the succession will be of great service when a continuance of supply is to be kept up. Cuttings root freely in sand and leaf-mould under bell-glasses in a moist heat. A. H.—T.

THE WAGES QUESTION.

It is hopeful to observe even a faint tendency to advance in the wages of head-gardeners; those employers who have taken the lead deserve our best thanks. That the wages of the under-gardener and garden-labourer have advanced generally, is due by necessity to the agitation and rise in other departments of labour. That the head-gardener is very much under-paid—we mean, gardeners in places considerably in advance of what are called single-handed places, or where one or two are kept—is sorely felt by the gardeners themselves, and admitted by every one of intelligence we have spoken to who understands the acquirements or natural ability necessary to conduct a garden creditably. It was a saying of the late Sir Robert Peel, that the price of a commodity was the amount it would fetch in the market; and that theory, or something like it, is constantly being quoted to show that however much any class of workers may grumble, it is receiving its true market value in the current price of its labour. It could be easy to show that the price of an article in the market is not always its value: we constantly hear of things being sold under their value, and of other things being dear at any price. Supply and demand regulate the price of labour in the bulk, and strikes, agitation, and competition, have also had an immense weight in favour of the workmen: and yet there are innumerable instances where skilled manual or mechanical labour does not receive full value, and no pressure from without can adjust it. There is no employer of labour who does not know this—that individual workmen are worth more money, and yet he cannot or will not advance on the market price. We do not hold that the head-gardener's is skilled labour; but allowing that it is, it is emphatically true that the above remark applies in his case, and no doubt in other professions as well. It is a difficulty which cannot be remedied except by individual employers themselves, and we think that a little agitation would do good, and no doubt has done good. The rest-and-be-thankful policy of one contemporary, we fear, would not advance our cause much: are we to wait and do nothing until we see if some-

Digitized by Google

thing turns up? or are we to be humble and contented with our condition, but do the best we can for ourselves, like so many Uriah Heeps? Better an outspoken frank policy, as recommended by the Editor of the 'Gardener,' and to which we are glad to see some employers have responded. Ordinary agricultural labourers have advanced about 2d. in the shilling, and garden-labourers and young gardeners in many instances have had the same advance. We are certain that dairy produce and of the farm generally has advanced in the same ratio, and we think that 3d. in the shilling is not an unreasonable request for the head-gardener to make: his position suggests a higher percentage of rise than that of the labourer.

The question may be asked, Who is to be raised? that must be left to employers to discriminate under every circumstance. There are few, however, who are so fully paid as to be passed over. We say to those employers who have got good men, Pay them better, and not leave wages as they are because others pay no more.

Really good gardeners are becoming more scarce every day, as many employers find to their cost who have changed. There are abundance of men in the market, but we have been told that the difficulty is to put hands on men really safe who are unemployed. It is therefore unjust to the persevering, plodding, able gardener, and who is, moreover, interested in his charge, and loyal to his master, to be paid a price below his actual value because he cannot shake the incubus of incapacity off the back of his profession.

Many employers of gardeners are really not interested in their gardens, and really are innocently incapable of judging of the gardener's quality or value as a servant: some are horsey, some doggey, some watery, in their propensities, and associate all gardening and gardeners in a lump together, as of less consideration than cookery and the cook, which it is the gardener's chief business to supply. It is not difficult to predict what branch of the *ménage* would be disestablished if a misfortune should befall at the Derby. Fortunately the tone of the upper ten is becoming more horticultural. Employers of the above class we should expect to be the last to raise the gardener's wages; but there are many who really know a good man when they have got him, and treat him with courtesy and civility, and all due respect to his feelings as a man and valued servant, and who know they have him cheap, but button up their pockets because they will not be party to raising a trifling permanent tax on their own purse, or initiate an example to their neighbours which might be disagreeable.

THE SQUIRE'S GARDENER.

Digitized by Google

NOTES ON BEDDING AND HARDY PLANTS.

Ageratum Imperial Dwarf. — This undoubted acquisition to the long list of bedding-plants, I have observed, is recommended to be raised from seed by some writers who have noticed its valuable qualities in different contemporaries, mentioning among other commendable points that it comes true from seed, and flowers the first season if treated in the same way as Lobelia speciosa generally is when raised from seed. It would be a boon to many, especially to those having scant wintering accommodation, could this indispensable plant be depended upon to come true from seed; and it would be interesting to all such to learn from those who have actually tried it in this way, whether it varies much, as no doubt it will to some extent do, and whether the variations in habit can be detected in fairly well-developed plants before the middle of May. I am sorry to have to record that even from cuttings there is a little proneness in it to vary, and in a direction that cannot from any point of view be regarded as in the way of improvement. My experience this season is, that it is apt to vary or sport somewhat—the direction of the sport being towards the straggling leggy habit of the old A. mexicanum. The store from which I propagated in spring was taken from stock that was last year all that could be desired for purity and uniformity of habit. Up to a late period of the spring, and while propagating was still going on, I believed there was nothing amiss; but when the earlier batches of cuttings began to grow freely after being pricked off, a considerable number of them was observed to have very much larger and coarser-looking leaves, as well as longer-jointed branches, than the neat and compact Imperial Dwarf. Fortunately the deviation from the true form was so marked and distinct that it could be readily detected if the plants were pretty well grown before bedding-out commenced. But in late batches of cuttings some escaped observation, and found their way into arrangements and positions for which their coarseness and leggy habit fitted them ill; and pegging had to be resorted to in order to bring them into harmony with the plants surrounding them. The first of this sport which I observed was one plant in spring among the winter-store plants, which when put in heat showed some signs of variegation in its leaves, in so far as that they were slightly reticulated in the lines of the principal veins with yellow. This colouring wore off, and was no more thought about after the first fortnight the plants were in heat, but it was observed that all along this plant showed more vigour and yielded more cuttings than any other in the batch. The progeny is like no other Ageratum I have seen; the colour is that of Imperial Dwarf, and almost acutely triangular in shape. I have not

Digitized by Google

seen nor heard of this freak elsewhere, and hope it is not general or frequent, but its occurrence here this season shakes my confidence in the practicability of raising large numbers of this most useful bedding-plant pure and uniform in habit from seed. [It has *not* come true from seed with us.—ED.]

Lilium colchicum.—This charming and rarely-cultivated Lily is one of the most attractive of this handsome family. It is rather a dwarf sort, rising to the height of about 2 feet. The leaves are narrow, pale green, and disposed on the stems in a scattered manner. The flowers are produced several together, are pendent or drooping, and large, with slightly-reflexed petals, bright sulphur yellow dotted with dark crimson or chocolate spots. It flowers in July, lasts a considerable time, and is a very choice plant for any ornamental position where it may have a good background of the foliage of shrubs. It is quite hardy, and succeeds in any good sandy loam well drained, but is fond of peat and old manure pretty liberally mixed with the soil.

Lilium excelsum.—This fine Lily bears two other names—the one, L. testaceum, being a proper synonym; the other, L. venustum, erroneously applied, and belonging to another species. It grows about 5 feet high, with strong stems clothed thickly with dark-green broadly-linear leaves. The flowers are large and drooping, with reflexed petals, bright buff, but when closely examined showing a slight dash of red on the inner side, but quite spotless. The flowers open in July and August, and stand dirty weather well, as has been well exemplified here (Minto) this season, where many heads of flowers stood quite fresh for a month under almost daily rain. For planting among shrubs of low growth it is one of the best; its heads of flowers, reared above the masses of foliage, being very effective. We want more of this sort of thing about our shrubberies than we are accustomed to see generally; there is no reason why a succession of flowers the season round should not grace and relieve the frequently extensive and sombre masses of shrubs that adorn many pleasure-grounds. There are at least many hardy herbaceous plants and bulbs that might be so employed, and among them there are few superior for the purpose to the various hardy Lilies; and the species above briefly remarked upon are two of the best among the less familiarly known hardy ones.

Statice caspica.—This is a pretty little hardy species of this useful genus. It forms tufts of dark-green leaves about 4 inches long, whence spring the rather slender flower-stems branching into numerous panicles of rosy-purple flowers, which prior to opening are silvery white. The flower-stems rise to the height of 1 foot, and the flowers open in August, and last six or seven weeks. It is a neat mixed-border or rock plant.

Digitized by Google

Statice trinervis.—This is nearly related to the last, and rather closely resembles it, but it is the most ornamental of the two. The leaves are shorter and blunter-pointed, and the flower-stems are also shorter and more closely branching; but the colour of the flowers and the time of flowering are about the same in both species. They both thrive well in any good garden-soil. W. S.

AMERICAN ROSE POTATOES.

As there seems to be a diversity of opinion about the above-named Potato, and as I have had a good lot of it planted this season, I may also record my experience of it. Last year we had a few yards of a border planted with it, and at lifting-time I was so well pleased with the crop, and the appearance of the Potato, that I resolved to reserve the whole for future planting; which I did. This season I planted about 400 feet of a 12-feet border with it; every set came up, and grew away until they attained a height of about 8 inches, and had been earthed up, when all at once several began to die off, until many of the rows —which ran across the border—had only two or three left in them, in some cases only one. What were left grew away vigorously.

We have been making use of them now for some time, and find them exceedingly good, white, of good flavour, and, when properly cooked, like flour-balls. Notwithstanding what died off there is still a good crop, the yield being large from what were left. There is no symptom of disease whatever in the tubers, and that when other varieties, such as Myatt's Ash Leaf, Milky White, Daintree's Seedling, and Dalmahoy, are with us in some cases nearly half of them bad.

I believe the American Rose will be an excellent keeper. When we planted them in the spring, they were as fresh and full of sap as on the day they were lifted, and had been kept lying fully exposed on the floor of the fruit-room all winter. Its tendency to die off young is the great drawback, and I am afraid is constitutional, as several people to whom I gave a few sets have experienced the same with it, as well as others who have had it. It could not, therefore, be the soil or situation that was the cause of it doing so with me; nor yet did they ever get cut down with frost. J. G.

MADRESFIELD COURT GRAPE.

I HAVE experienced the same thing with this Grape as that mentioned by Mr Hunter in the 'Gardener' for July. In this case the Vine was a grafted one, growing in a curvilinear house along with Muscat of Alexandria and others. All went well till about eight days before colouring, when an ugly black "spot" appeared on some of the berries, which soon spread all over in the manner described by Mr Hunter, sadly disfiguring the bunches. At this time the weather was very hot, and atmospheric moisture was freely applied to counteract its influence. The superintendent remarked that moisture was in excess, and desired that the house should be kept drier; and the subsequent treatment proved that his judgment was correct. Moisture was decreased, and air abundantly given; then this fine Grape finished off beautifully. There are other Grapes more or less subject to "spot" or "scalding" (the latter a continuation of the former), as almost every gardener knows to his great annoyance. Muscats, Golden Cham-

Digitized by Google

pion, Lady Downes, and even the Black Hamburg itself, will sometimes show a "scar" on the side of some of its berries. Without denying that the malady may in some instances proceed from sluggish root-action, I feel sure that in the majority of cases it is brought on by excessive heat and moisture combined during the latter stage of stoning. Heat and moisture are powerful agents in Grape-growing. We cannot do without them, but they ought to be judiciously applied, if satisfactory results are to be obtained. This was strikingly pointed out by the able Editor of this journal in July, to which all gardeners would do well to take heed. S.

PELARGONIUMS.

ABOUT the second week in March stop back the plants required for blooming in July. In April the plants should be shaded with thin canvas during the heat of the day, and a little weak liquid-manure water should be given them, composed of sheep-dung, and a little slacked lime and a bag of soot put in the water. Fumigate the plants before they come into bloom, as this must not be done when they are, as it causes the blooms to drop off. Exclude bees from the house with netting or canvas, for if allowed access they fertilise the flowers, and they soon fall. Keep the plants well watered, and do not allow them to get too dry during the time of flowering: it is a good plan to place the pots on some damp moss to prevent their drying so fast, and this will help to prolong the bloom. I append a list of a few of the best varieties in each class, such as will be found acquisitions in any collection.

Foster's Achievement—a pleasing, large, light variety of great merit, lilac rose lower petals, maroon spot on top, large white centre, very distinct. *Foster's Pompey*—a very large flower, of rich colour and fine form, orange lower petals, maroon top, with orange margin, large white eye. *Foster's Cæsar*—rich crimson, fine bright lower petals, painted top, petals dark maroon, with fiery crimson edge. *Hoyle's Rosicrucian*—new shade of colour, rosy purple, maroon spot on top petals, shaded with purple, fine form. *Hoyle's Charles Turner*—scarlet, with a pure white centre, lower petals of perfect shape, upper petals scarlet orange, with shaded maroon spot, very fine. *Foster's Black Prince*—large clear white eye, lower petals rosy crimson, top petals black, with edge of bright carmine, fine. *Hoyle's Imperator*—a rich dark flower of fine form and substance, lower petals deep crimson, black top, narrow crimson edge. *Foster's Brigand*—clear cherry pink, with maroon spot on top petals, shaded to the margin with orange pink, clear white eye, fine. *Hoyle's Claribel*—the purest white, with small spot of bright carmine on top petals; a lovely flower, and quite distinct. *Hoyle's Duke of Edinburgh*—a dark, rich flower,

Digitized by Google

with deep crimson lower petals, veined with maroon, top petals black, large and free. *Foster's Hermit*—lower petals light rose, with mottled maroon spot on the top petals, very light edges, large white centre, large, fine, and free. *Hoyle's Progress*—light centre, lower petals orange red, richly marked with dark red, top petals very rich velvety maroon, carmine margin, fine.

FANCY VARIETIES.

Turner's Fanny Gair—rosy lake, suffused with purple, clear white centre and edges, fine form and substance, very fine. *Turner's Marmion*—rich crimson top petals, shaded with purple, clear white eye, very narrow edge, large. *Turner's Mrs Darling*—beautiful mottled lilac, white throat and edges, fine form. *Turner's Leotard*—bright cherry rose, with clear white centre and edge, very smooth, and of great substance. *Turner's Mrs Ford*—lilac, margined with white, lower petals suffused lilac. *Turner's Brightness*—deep rosy crimson, clear white centre and edges. *Turner's Mirella*—vivid rosy lilac, light throat and edges, free bloomer. *Turner's Princess Teck*—white with carmine spots, very smooth, a most profuse bloomer. *Turner's Pink of Perfection*—pink, of a pleasing new shade, light centre. *Turner's Miss in her Teens*—cerise upper petals, under petals mottled crimson. *Turner's Edgar*—dark maroon, nearly black, with a light throat. *Turner's Acme*—purple maroon, white throat and margin, good form and habit.

PROPAGATION OF BEDDING-PLANTS.

I THOUGHT of writing some notes on the propagation of bedding-plants, and notwithstanding the article on the same subject in the July part by "J. G.," think it not unlikely that the narration of my practice with these plants may be of use. I have no doubt that any one following the directions given by "J. G." will be successful in striking the cuttings, but the same end may be attained with much less work. In the first place, take the preparation of the cutting; in my practice I never make a cutting—professionally speaking. In the case of all soft-wooded plants I generally cut far enough beneath a joint to allow the cutting to be inserted without burying the under-leaves; cutting under the joint in the usual orthodox fashion, as a means of securing a better chance of striking the cuttings, I consider a waste of time. Geraniums, Verbenas, &c., &c., do equally well without being cut at a joint. Then as to draining the boxes or pots, any more than one crock over each hole in the box, and one in the case of pots, is simply superfluous; some roughish pieces of turf spread over the bottom secure all the drainage necessary. Generally boxes are made 4 inches deep,

Digitized by Google

sometimes deeper; for this purpose, and drained as thus recommended, 3 inches is a sufficient depth. Useful articles for propagating purposes, especially in spring, are wooden trays ½-inch deep, riddled in the bottom with small holes; these, filled with a light compost, are capital either for raising seeds, such as Primulas, or striking bedding-plants. A good soil for striking and growing Verbenas through the winter is a friable loam, sand to be added only if necessary; just enough sand to whiten the top of the soil all over if the loam is free in texture. I use the soil rather moist than dry, and do not water the cuttings until they have "calloused," and all danger of damping past. If the least appearance of flagging is seen, they are just dewed over and the sides of the frame wetted. The cuttings are put in end of August or beginning of September. It is of the first consequence to have the cuttings free from either red-spider or mildew; therefore to have good cuttings, if the weather is hot and dry, and those pests appear, water some of the plants, and cut all the flowers off, when a nice lot of healthy cuttings will be the result. A cold frame facing south kept shaded from the sun, but not too much so; a little air left on at night, but none in the daytime till rooted; then air by degrees till the lights can be removed altogether,—sum up the other parts of the treatment. Alyssums, Lobelias, Petunias, &c., do as above.

Geraniums may be put in the three first weeks of August; later than this does not answer. Where the plants can be kept in pots over the winter—which is by far the best plan—the most of the varieties may be struck on a border out of doors, and potted off as soon as sufficiently rooted. Those sorts which do not strike freely out of doors ought to be put in boxes and placed in an airy pit. On all accounts eschew frames in the case of Geraniums—Golden Chain will strike well thus. If grown in boxes through the winter, use a soil about the same as that recommended for Verbenas, mixing in some sand for sorts like Bijou, which is not a first-rate striker. No sand will be required for the Zonals, nor for variegates like Bright Star. If potted in autumn, use the same sort of soil, dispense with all crocks, put a bit of turf at bottom, pot firmly, and use 60- and 48-sized pots. Such plants ought to look as well in the flower-garden in the beginning of July as some people's do in the middle of August. Centaurea ragusina puzzles some gardeners to propagate. I know a gardener who puts a cutting singly in a 3-inch pot, and stands them at the back of a north wall, with a very small percentage or loss. They may also be successfully struck in cold frames, one in a 3-inch pot, the frame kept shaded from sun for the first fortnight, and a little air kept constantly on. Either centre or side shoots, with or without a heel, strike equally well. I leave all the leaves on—in fact, treat them in all respects, except airing,

Digitized by Google

like Verbenas. Iresines and Alternantheras require warmer quarters all through than those just mentioned. Calceolarias should not be put in till absolutely necessary on account of frost, if not planted out in cold frames; use a good sound loam, with some sharp sand added; place in a cold frame, and keep no closer than necessary, to prevent flagging. Unless large plants are wanted, they may be treated thus, and kept rather dry till spring, when they should be kept close and moist till rooted, then aired freely. However, when large plants are required, keep close at first and moist, they will soon root; and if kept moist all through the winter, plants of the largest size will be the result. Succulents such as Rochea falcata, Klenia repens, Echeverias of sorts, and all others propagated from cuttings and leaves, should be got in as early as possible, using a good loam and sand, and placing in a not too airy pit. Sempervivums, and those which are increased from offsets, may be left till later, and wintered in a dry position. Phloxes, Pentstemons, Antirrhinums, &c., strike well in cold frames kept shaded from the sun.

R. P. B.

HORTICULTURAL EXHIBITIONS.

It is not my intention to say what Horticultural Exhibitions accomplish, but rather to notice some of Mr M'Millan's strictures hurled against exhibitors and others, and ask, Why should they be so sweepingly charged with what is not applicable to them as a class? If we take the matter quietly without making a defence, unwary readers may imagine that the picture is correct in all its bearings. A short time ago, when the servant-maids of Dundee held their demonstration with the view of promoting their interests, some strong censures were launched against their employers; overwork was a grievance, much of which was said to be caused by the visits of ministers late on Sundays, and extending their "toddy-drinking" hours into Monday morning. A provincial paper remarked that surely there was truth in the damsels' statements, or that the ministers would deny the charge when the Presbytery met, or consider it below their notice. I intend on this occasion to deny what I consider are not *bona fide* statements.

I do not know what Mr M'Millan's opportunities may have been in gathering his information, but he takes the dark side of the picture, and is not overmerciful to delinquents. Firstly, We reply to the charges of dishonesty "among exhibitors," and ask if Mr M'Millan here excludes himself, as he sometimes exhibits, and if not very successfully, certainly not discreditably? I say the charge of dishonesty is not a general one, and must apply to very few cases. Secondly, Judges being appointed from men who know nothing of the duties they are expected to perform cannot happen often, if it is correct that they are chosen from among men in great places, and the friends of the committee who select them, as this would bring the same men often into work, and they would soon be sufficiently schooled in the art of judging. We have, unfortunately, no proper standard for the guidance of judges, except it may be 'Glenny's Properties of Plants and Flowers,' which can hardly be surpassed. There is nothing for Fruits and Vegetables, consequently judges cannot all be

Digitized by Google

expected to hit the same mark. Thirdly, That judges give verdicts through favouritism surely must happen very seldom. We never yet met with men who were placed in the position of judges but were very jealous of their reputation. I believe that when mistakes occur it is done without the intention of the censors. I know men whom I could trust to judge their own articles. I have sometimes believed that I got prizes which should have gone to others, and found out afterwards that I was in the proper position. I have also been placed second when every one thought that I should have been first, and a deputation from the committee was sent to the judges, but such things happen seldom. Some time ago I was placed first with a collection of Fruit, when I thought that I should have been second. A very fine-looking Pine and extra fine-looking Peaches were considered the leading points in the 2d lot, but I got a chance of examining them late in the day, and found that the Pine was green at top and decaying at bottom, and the Peaches were hard, and never would ripen to be fit for dessert. Judges get the chance of examining all sides, and visitors and others only what is facing them.

Fourthly, I agree that judges are often misguided for the want of proper rules to lead to a just decision, and societies who have their own interests at heart should have their rules well arranged, and always make a difference between the words "species" and "variety." Fifthly, That there is no guarantee that successful exhibitors are better gardeners than those who compete unsuccessfully, may be quite correct, but it evidently shows that the successful man has better articles in his possession, and good things only should be brought for a show. A man trying to "accomplish a thing with one hand while he destroys it with the other," by not bringing forward his entries, is a too common practice, and a charge which has applied to myself more than once, but not through want of "horticultural courage." Often when I have entered I have found that on the exhibition-day the articles (fruit) were either too far gone or not ripe enough; one cannot always hit the right moment, especially when the weather is changeable. There are other reasons which prevent exhibitors from bringing forward their entries. I will give one which caused me to fail in putting in an appearance at the late great show held at Birmingham. I entered into classes chiefly for Grapes, but afterwards learned that the fruit was to lie on the tables the greater part of a week, and I was not inclined to make a sacrifice of fruit which was bringing such a high price at the time, but sent it to my employer's table at Belgrave Square instead. Judging from the report of "W. T." on the Birmingham Show, that there was five times the quantity of fruit at the Caledonian Society's Show, and of finer quality than at Birmingham, I could have done better at the latter than the former. But employers are not to be expected to make a great sacrifice of valuable fruit, though ever so anxious to support exhibitions. Watching neighbours' articles at their places, and bringing forward only what are to take prizes, is surely a very exceptional practice. I can say that I never did it, and never suspected any others of such practices. The small frame of Carrots, Turnips, Potatoes, and a dozen Cauliflowers "coddled" up may be the practice of some, but I never had an opportunity of doing it, having to turn everything to account to try and cope with Covent Garden, but of course cannot. Cultivators should use means to get their whole stock fit for their employers' tables, and they would have plenty to compete with. I never had any chance of cropping light to suit exhibition purposes, and never was in my life found fault with for cropping light, but often told that I am too heavy. I know some exhibitors who are invariably successful, and are among the heaviest croppers in the country. Employers

Digitized by Google

are quite right in preventing their gardeners exhibiting when there are reasons for it, especially if under-cropping is practised; but some do this to some extent with fruits, and what are seen on the exhibition-tables are selected for the show in the same way as those fine bullocks are from the general herd. It is hardly desirable to get a whole herd up for the exhibition, but certainly not to sacrifice the many for the few. Though there is much in Mr M'Millan's letter that is forcible, and I trust will lead to good results, still my opinion is that his strictures are too sweeping and severe. M. Temple.

SHOW PELARGONIUMS AS BEDDING-PLANTS.

For every ten gardens you go into, you will not see one with the above used as a bedding-plant. I cannot think why this is the case, as nothing is so handsome in a bed or at the back of a ribbon-border, if the plants are large. Perhaps people think that the rain spoils the flowers of this variety of Pelargonium, but in this they are much mistaken, as rain has not half the bad effect on them it has on the scarlets, &c.: this I say from experience, as I have used them as a bedding-plant for some seasons back. I have tried them in both a poor and a rich soil: in the former they did not grow very much in size, but yielded a wonderful quantity of blooms: and in the latter grew quite rank, and yielded a fair quantity of flowers. I grow them as bedding-plants for two reasons: in the first place, as they look so well planted out of doors; and in the second, they are so handy for cutting for bouquets; and unless you have a very large amount of glass and a number of plants blooming in succession, you cannot well afford to cut large quantities.

In the autumn, when I take up my plants, I cut them back hard, and pot them in small pots. I keep all the blooms and strong young shoots picked off during the winter and spring months, till it is nearly time to plunge them out. By doing this, and starving them when they are put out in the open ground, they start off at once and begin to flower. During the time they are in the house I give them very little water, but for a week after they are planted out I give them an abundant supply. A. H.

Upper Norwood.

NOTES ON BEDDING-PLANTS.

If any of our readers have not yet got in their full quantity of Geranium-cuttings, no time should now be lost in getting them put in. Cuttings put in so late in the season as this should be put into pots in preference to boxes, and placed in a temperature of about 65°. If a little bottom-heat can be given, they will be the better for it, but will

Digitized by Google

do well enough stood on ledges or shelves in Pine-stoves or similar structures. Circumstances once forced us to put in some thousands of Geranium-cuttings late in November; they were all put into 6- and 8-inch pots, and kept in a temperature of 70°; about 90 per cent of them rooted and grew freely, and were potted off in early spring. By the time we were beginning to bed out, they were quite as good as if they had been put in at the usual time.

Now is a good time to increase the stock of Sempervivums and other succulents. They will have thrown out numerous young plants round the collar of the old ones; these slip off and prick them out under hand-lights in some nice rich soil made pretty firm. The hand-lights prevent the birds from scratching them out, as they are sure to do if left uncovered. Of course this method only applies to the hardy kinds; more tender varieties must be dealt with indoors.

Gazania splendens is generally put in about the latter end of this month. A compost of equal parts loam, leaf-mould, and sand will suit them very well; the cuttings to be put in about the same distance apart as Geraniums. A good deal of labour may be saved by treating this plant exactly as we do Calceolarias. We put in about 1000 cuttings of it in the middle of November last year, same time as we put in our Calceolaria cuttings, pricked out into a cold pit side by side, and only protected through the winter with mats. I do not think we lost a single cutting out of the lot. When we lifted our Calceolarias in the spring to transfer them to where they would have more room, we also lifted the Gazania, and replanted it somewhat thinner in the bed than it was. By planting-time it was beautiful dwarf stubby stuff, bristling with flower-buds, and made an effect in the flower-garden very soon after it was planted. Spring-struck cuttings, on the other hand, are generally a long time planted out before they flower very freely. It is also a consideration to have even this off our hands in the spring, as there is then plenty claiming our attention without it.

Verbenas will now be getting established in their pans or pots, as the case may be. See that they do not suffer for want of water; do not keep them saturated with it, though; give water only when they require it, and then in sufficient quantity. Keep a sharp look-out for green-fly, and fumigate immediately it is observed. When they begin to grow freely, pinch out the terminal bud, so as to keep them nice and dwarf. Cuttings of Ageratum and Tropœolum may still be put in, provided you can give them a little bottom-heat. Cuttings of 'Pansies pricked in thickly in some light rich soil in a cold frame will root freely, and be in nice order for planting out in early spring. Holyhocks may also be increased by eyes, or cuttings under hand-lights, in rather sandy soil. Cuttings of Antirrhinums, Pentstemons,

Digitized by Google

Cupheas, and suchlike, may also be put in; they do best in 6-inch pots, well drained, and if they can be placed in a gentle heat they will do all the better. A slight shading may be necessary at times until they be rooted. J. G.

CLEMATIS.

The great improvement which has of late years been effected on Clematis has raised them to a position, as decorative hardy plants, scarcely second to any other genus of plants that are suitable in so many ways of adorning our gardens and grounds. The many splendid varieties of Clematis that are now available for covering walls and fences of every kind, old stumps of trees, and for trailing over rooteries and rockeries, when liberally cultivated, cannot fail to add a most desirable feature to our gardens. They have been successfully cultivated in masses on the bedding-out principle. But we cannot but regard their use in such a way as something approaching to a cruel limitation of their free and elegant mode of natural growth. As early summer creepers in a cool greenhouse or conservatory they are most effective. But it is essentially on walls, on old stumps of trees, rustic fences, and over archways formed of roots, &c., that they display their beauty and capabilities to the greatest perfection. Nor are many of the varieties very particular as to aspect, for we have seen such as Jackmanii —one of the most useful and effective—splendid on a north aspect.

They are most easy of cultivation, and the chief point in being successful with them is to plant them in loamy soil, well enriching it with manure, and afterwards mulching the roots with rich manure, and watering with liquid manure in dry seasons. Few plants like liberal culture more, and few look more unworthy of their real merits when grown on the starvation principle. They are a genus of plants that grow and extend themselves with wonderful freedom and rapidity, and that throw their crop of bloom chiefly at the extremity of their vigorous growths. This, therefore, should be the key to the system of pruning, which will best enable them to cover a surface—say of wall or anything else—equally all over with a crop of bloom. The pruning, therefore, should be so effected as to have young growths starting from the very base of the plants, and at regular intervals upwards till within 5 feet of the top of the wall. This, of course, applies to high walls: for walls not over 7 or 8 feet high, the best way is to cut hard in to two or three buds at the base. If this hard cutting-in annually is not practised, the result is a crop of weakly shoots and comparatively small flowers at the extremity of the plants only, and they soon get leggy and naked at the bottom; while on the close-pruning system they are kept furnished with young wood regularly all over the plants; and, moreover, they throw up far stronger growths and finer clusters of flowers. After they are done flowering—say about the middle of November—look over them, and cut them partially back, deferring the final pruning till March. They are easily excited into growth, and in mild winters burst the buds near their extremities, and would keep on growing at the expense of the strength of those lower down, which in the long-run produces a naked bottom; but by partially cutting them back, the bottom-buds share to a certain extent in the general excitement, and come away more strongly and freely after the final pruning in spring.

The whole of the finest varieties are easily propagated by being grafted on the roots of the common Clematis flammula in spring, just as they begin to

Digitized by Google

grow. They also increase freely from cuttings, putting them in with a portion of the previous year's wood, just as they have grown about 1 inch in spring, and placing the cutting pots or pans in a gentle bottom-heat.

Among the many varieties now in trade, the following will be found very effective :—

Albert Victor.	Mrs James Bateman.
Lady Bovill.	Rubella.
Lady Londesborough.	Prince of Wales.
Magnifica.	Standishii.
Jackmanii.	John Gould Veitch.

I understand the Messrs Lawson are at present distributing some seedlings raised by Mr Isaac Anderson Henry, said to be of extraordinary size and beauty.

CLEMATIS.

DOES THE GARDEN PAY?

THE garden often pays much better than the home-farm, was remarked in the leading article of the 'Gardener' for May, the truth of which we are morally certain is quite correct in very many instances. We are, however, quite certain that the garden is a paying concern commercially—that is, the value of the results of the labour quite overbalances the cost of the labour and other expenses. Last year we were required to make out a statement *in extenso* of the value not only of fruit, flowers, and vegetables produced and supplied to the family, which is an annual thing, but of the marketable results of the labour generally, for the purpose of showing how the garden stood commercially alongside of the other departments of the home management—farm, woods, and game. We most willingly did so to the best of our possible ability. It was found at the outset that the thing could not be thoroughly done without a system of double entry: for instance, a high-priced new horse is charged against the garden for the year, which should also have been charged on the other side *minus* a percentage for depreciation of value; and several other instances of a like nature occurred, among which are new hothouses, &c.

Our procedure was more simple, and to our own disadvantage. All forced fruits, flowers, and vegetables consumed in the country were charged at Covent Garden prices; the same for produce sent to London during the season. When the family were in the country during summer and autumn, the charges were regulated by the local market. Allowances to servants and others who had claims on the garden for supplies were charged at the same rate.

All soft-wooded decorative plants used in rooms or for the conservatory—such as Cinerarias, Primulas, Balsams, from seed; and Fuchsias, Geraniums, Poinsettias, and the hosts of annual things from cuttings; Achimenes, Gloxinias, from bulbs, &c.—were charged at the local nurserymen's prices; and here we think we lost, as we felt that full charges according to quality and size would be overwhelming.

The charge for bedding-plants, which are as much an annual crop as vegetables from seed, was also regulated by the scale of prices in the local nurserymen's lists; and here again we lost, taking quality into consideration. These included all plants from cuttings or seeds which were utilised within the year, and we may remark that this item swelled our bill immensely, as it was fairly entitled to do, having absorbed a very large proportion of the routine labour throughout the year.

We might also fairly have charged increased value on permanent plants

Digitized by Google

requiring daily attention in pots or tubs, such as Heaths and hard-wooded plants, Camellias, Azaleas, &c., but we refrained from doing so.

Our account was discussed and sifted by a thoroughly shrewd and experienced land-agent, who was also particularly interested in the good appearance of the home-farm at the year's end, and other departments of the estate, and his opinion was, from personal experience at the time in dealing with compensation cases with market and nursery-gardens, that the statement was reasonable, and indeed understated. The result showed an immense balance in favour of the garden, supposing the whole had been bought instead of having been produced.

Now we believe that our case is just that of the majority of gardens. The keeping of a debit and credit account would show conclusively that the garden is not an expensive luxury, and be most satisfactory for the gardener. The garden is now a necessary of life as society is constituted, and much less a luxury certainly than high-class cookery or the maintaining a cellar of liqueurs. A well-kept garden is as necessary as a clean-kept house. It is only when gardening takes the shape of a hobby—as, for instance, Orchid-growing, which is not gardening—that it becomes a luxury, and an expensive one.

We can vouch that the labour and the management of a large garden are anything but luxurious, and also that the majority of employers look for full value for their money expended, and not a few require all surplus to be sent into the market; and a market for good produce is easily found. There are some of the labours of the garden which are not materially productive; for instance, mowing and sweeping lawns, keeping walks, pruning shrubs, the whole of which must be lumped as garden labour, and must be borne by the garden as a whole. In private gardens a charge could not easily be made for the pleasure given to the eye and mind resulting from well-kept grounds, still we think it might be made with perfect legitimacy. There are not a few public gardens kept for profit, the enjoyment of which may be shared by everybody for a money charge.

The garden has one great advantage over the farm, in the circumstance that it has not so much to fear from the competition of the foreigner, fresh fruit and vegetables not being so movable as wheat and cattle or preserved meat. On the other hand, the garden is infinitely more at the mercy of the weather than the farm, as the results of the current year will show.

We suspect that the cause of many home-farms being commercially unfortunate, is the extra labour required to make them presentable, the brushing and sweeping being the unproductive item, just as in th garden.

THE SQUIRE'S GARDENER.

GYMNOSTACHYS CULTURE, AND POT-BOUND FRUIT-TREES.

BEING an attentive reader of your excellent journal, I find in it much that is instructive, much that is suggestive of thought, and now and again a little that is amusing. Belonging to the latter class are the remarks of J. T. Burns and "D. M." on the above subjects in last issue of the 'Gardener.' Mr Burns, in giving cultural directions for the Gymnostachys, makes the following statement: "There should be 10 inches of space left for soil," &c.; and a little further on he adds, "And it would be folly for any one to attempt to grow them with success without bottom-heat." I know not what Mr B. would consider successful culture, but this I do know, that a single plant, in

Digitized by Google

two seasons, spread over 2 feet in diameter, in pans not more than 6 inches deep, and that too without bottom-heat. Compare also a brother gardener's experience, given at page 360 of July No. of 'Gardener's Magazine.' Mr Silver appears to grow them largely for table-decoration in shallow pans, as also in baskets suspended from the roof; but the fact of the matter is, that any one with an ordinary stove or forcing-pit may grow them successfully, as they thrive where but few other things would exist for any length of time, no matter though overhung by larger plants; they seem rather to luxuriate in close shade. In preparing the pans, I place a layer of ½-inch bones over the crocks; and to the compost used by Mr B. may be added one part good turfy loam with a dash of Cocca-nut fibre, and do not allow them at any time to suffer for want of water.

I come now to consider some of "D. M.'s" statements on pot-bound fruit-trees. "D. M." informs us that "potting the trees requires to be done judiciously; they ought not by any means to be cramped up into too small pots; such treatment will ultimately be their ruin." To this no one will take exception, for if the pots are *too* small, they are evidently useless. "D. M." says, "No. 1 size pots are ruinous to fruit-trees." Now every gardener knows that whilst the vital energies are mainly directed toward their size, fruit-buds are sparingly formed, if at all; hence root-pruning, and transplanting in the open ground: but fruit-trees in pots are more under control, so that allowing them to become pot-bound has just the desired effect, while they can be kept in perfect health by artificial means, such as a regular supply of liquid manure during the period of growth. What are "D. M.'s" proofs to the contrary? Why, out of a number of trees he had four deaths from the results of the potting; *i.e.*, from the smallness of the pots, as he believes.

Besides accepting the facts and results as "D. M." states them, am I not justified in thinking he is generalising a little too fast in connecting them in the manner of cause and effect? I have always been taught not to assume this relation to any individual sequence, till by further experience I had ascertained that the sequence was uniform: now, that the sequence is not uniform I can confidently say, for at this moment I have under my care five Pear-trees, four of which are in 12-inch pots, and one, a Jargonelle, in a No. 1 pot, all in perfect health. The Jargonelle bears 58 Pears, all swelling nicely; the others range from one to two dozen. Those trees have not been shifted since 1866, and have received but very little attention; at that date they were placed against a wall facing south-east, in which position they remain, with the exception of the five taken in this spring. The pots are protected by coal-ashes, which during winter are drawn over them to the depth of 6 inches. A regular supply of water to the roots and occasional syringing overhead are all the care bestowed upon them; and yet they bloom freely, especially the Pears; and I have no doubt, had we room for them inside, they would yield a fair return. I fear I have already extended my remarks too far. T. F.

RACHAN GARDEN, PEEBLESSHIRE.

JOTTINGS BY A YOUNG GARDENER.

IF antiquity is honourable in a profession, I think we may claim the most honourable place for this lovely profession of ours. It dates back to the time of our father Adam, when he was placed in the Garden of Eden to dress and keep it. No wonder that the bud thus early formed should have developed to

Digitized by Google

the size we now see it—not a puny bush, but a mighty tree, whose branches stretch out into every civilised country, and is now the tree of knowledge and pleasure to thousands of Adam's scattered race. Thus the desire for gardens and flowers has been handed down from generation to generation, and developed from the single to the universal. Who ever thinks of building a house without a garden to add to its beauty? Oh! they say, let us have a garden, though it be only a few yards square. It is the same in every civilised country where plants of unlimited numbers and beauty bloom in the open air, or like our own, where we have to use artificial means to shelter many of Flora's choicest gems. As we look back to the days of our forefathers, we think how much easier, and better too in some respects, it was for them than it is for us at the present time. The small amount of forethought required gave them that freedom of mind we cannot expect. The limited number of glass houses then in use, freed them from an immense amount of manual and mental labour, early forcing being in its infancy. And last, but not least, the thousands of plants now annually prepared for the flower-garden,—all prove the weightiness of the work at present, in comparison with the lightness of it in days gone by. But the sun was not always bright in those days; they had disagreeable work, that we as young gardeners know little of. They laugh at our labour when we complain, and tell us it is nothing compared with the work of some fifty years ago. They rose early, many mornings at three, to lay low the tender grass ere the sun's rays had lapped the dewdrops from the blade. Nor do they forget the time they spent on the walls, nailing midst frost and snow, or the wet days at the spade, inside work being so limited. Then there was all the anxiety in winter to keep out Jack Frost from the pits and frames, and a host of flue-fires to keep burning; all speak of difficulties that we are apt to forget.

But their efforts in many cases were earlier crowned with success: requiring less knowledge and experience, they were sooner prepared to take a responsible position of trust. It must appear more and more evident to us as young gardeners, that we shall be fully exercised in that good old virtue patience. Still I think, as we compare the past with the present, we may rejoice that our lot has fallen in these stirring times.

Gardening is on the quick-march alongside other arts and professions, and calls aloud to us, as young gardeners, to use our time and talents in this our day, to keep the grand old profession moving upward and onward. We must try fully to comprehend what will be required of us in the future: that the requirements are great, I think no one will doubt. Let us then be ruled by true and noble principles, striving to make our lives great for the work's sake. If we feel that Providence has placed us in the positions we hold, let a keen sense of duty and love for the profession ever impel us forward. As essential requisites, we will commence with *Observation*. It should be one of our first attainments. An observing gardener is like the busy bee, gathering honey from every opening flower. He drinks in thoughts from nature pure and fresh. Inspecting everything that comes under his observation, he gains an amount of knowledge procurable by no other means, and lays up a store of facts that will prove to be of the very highest value. It must be borne in mind that the possession of an observing eye is not attainable in days or weeks, but by constant application. How true it is that the more we observe, the greater our pleasure and richer our store! Again, *Application*, or to apply in a practical form what we observe. To make daily notes of our observations will be found a most useful and beneficial exercise; they may consist of the state of the weather, which may be truly named the gardener's regulator, both of inside

Digitized by Google

and outdoor work; by day and by night he has to cast his eyes heavenward, and view the ever-changing sky, and act accordingly. Airing and firing are two of the main points in the successful cultivation of plants and fruits in glass houses, and are greatly ruled by the state of the weather. Injudicious airing is the very breeder of insect-life in various forms; as also of weak growth, mildew, and other diseases. How many houses of Vines are made unsightly for the season by the same cause! A blazing sun with hot pipes in early morning, and no air given, has turned many a house of beauty into an eyesore for the season, injured the full development of the leaves, and thus injured the crop. Winter and spring are the main times for taxing the abilities of the fireman; he who, heedless of the state of the atmosphere, keeps the fires going nearly at one pace, must cause much waste of fuel, and keep the houses at very irregular temperatures. To know fully the principles of hot-water circulation, and the construction of boilers, is a branch of the profession that is pressing its claims very hard upon gardeners of the present time. Again, the *Cultivation of Fruits*, which may be termed the leading stem of the profession, is worthy of our consideration. A plant confined to a pot can easily be replaced if required; not so in the case of a house planted with permanent Vines or Peaches; therefore the more care and attention are required. The construction of the houses, the formation of the borders, and the soil most suitable for them, also the time required from starting to ripening their fruit, at various seasons of the year, that the crop may be matured at the time required, weather and other influence permitting, the temperatures they have required, &c.,—these are notes that will prove of the greatest value to us when we have power to put them in practice. Then follows the culture of the various plants. A good plan to thoroughly test one's knowledge of this important branch, is to write out at leisure the treatment required for the most important ones; the time they bloom, and how long they continue in season; if suitable for table-decoration—a very important point nowadays, and one that taxes the taste of the gardener. It will be found a very interesting work when the duty of the day is over: it reveals what we really know, and stimulates to further search. Confidence will certainly flow from such a source, of the right kind, that will bring honour and not shame. The naming of plants is a most useful and practical exercise: it should be our aim not only to know the name of every plant under our notice, but its native home, when introduced, and the chief characteristics of it. What reveals more ignorance in our profession than to be asked the name of a plant, and have to give the reply of "Don't know"? Another very interesting study is the formation of new grounds, or remodelling of old ones. How pleasing it will be, if called upon, to lay out or remodel any place we may be called to, where we may expect to spend many years of our life, and watch the full development of the work! Every gardener is now expected to be able to draw plans—a very pleasant work, and one that will add much to our knowledge of the construction of houses and grounds. Our experience will then enable us to adapt the right house for the object required. Botany and the physiology of plants are indispensable to all who desire to be ruled by higher laws than that of the rule of thumb. But the field widens as we pass from study to study. We are not placed in a garden of thought that is walled all round, but one that is open and free. As young gardeners, we are tempted many times to give up the profession in despair when we think of the amount of knowledge required, and the self-denial to be exercised, before we reach a position where our talents can be brought into full play, and our labour receive its just (?) reward.

We have been much cheered by the general rise of wages this year. Truly

Digitized by Google

it was much required, for there is no profession receiving less remuneration, considering the mental and manual labour connected with it. The dearness of provisions and clothing, the high price of books and other articles required by young gardeners, and which we cannot do well without,—these added together, and placed on the debtor side of our account, prove an equal match for the credit side, leaving little or nothing for emergencies. May young gardeners be encouraged to stand by the time-honoured profession, to support her fame and extend her usefulness in the world! For assuredly our profession has a beneficial influence on the morals of men, in the dusty bustling towns as well as in the quiet country.

G. Forbes.

Thoresby Park.

DYCKIA ARGENTEA.

This, the gem of a small genus of the natural order Bromeliaceæ—to which so many useful and interesting plants belong, the Pine-apple included—is one of the rarest and most ornamental plants in cultivation, there being, I believe, only *two* plants of it in the country—one in the Royal Gardens, Kew; the other in the fine collection of Wilson Sanders, Esq., Reigate. The unproductive searches and inquiries in numerous other botanical and nursery establishments fully verify the above impression. The predominating attractions of this remarkable object consist in the symmetrical arrangement of its beautiful creamy-white scaly leaves, which are produced from a short base, attaining a length of 18 inches, from 1 to 2 inches in breadth, deeply serrated along their margins, and tapering into an elegant silvery point, the whole arched or recurved into an exquisite semi-hemispheric shape. Those referred to luxuriate in a mixture of loam and sand mingled with bits of brick; and like their more common congener, D. rariflora, would increase from suckers when produced, succeeding well when associated with and receiving much the same treatment as that given to Agaves, Beaucarneas, Dasylirions, &c. Surely this plant merits the attention of our enterprising collectors in tropical America, for it is a pity that so desirable and exceedingly handsome a plant should remain an utter stranger in our gardens. An esteemed veteran recently informed us that all endeavours to procure it for this last five years have been fruitless.

J. M.

A FEW OBSERVATIONS ON GARDEN SOILS.

Among other papers in your June issue we were much interested in perusing the racy article on the texture of soils by your able correspondent "J. S.," and cannot help thinking that such articles now and again would be instructive to many of your professional as well as your amateur readers. In regard to soils generally, especially in connection with the cold wet weather which prevailed during the former part of the past summer, and in cold seasons generally, those

Digitized by Google

which were productive of good results in dry hot seasons have assumed a totally different character in cold wet ones. This is applicable to cold tenacious soils. In the very dry summer of 1868 we found all plants of the Brassica tribe and bedding plants luxuriate beautifully in a soil of the above description, while on soils of a similar kind this season they had the appearance of being literally stunted: probably this might have to do somewhat with the former culture of the ground, but it was in a milder situation than in the other case referred to. It is well known, however, that, as a rule, both in this last and other cold wet seasons, light soils are much more able to cope with excessive moisture in the rudimentary stages of growth than are heavy cold soils. In seed-time, also, much depends on the character of the soil at the cultivator's disposal, and it is only in exceptional seasons that sowing can be done early on heavy soils, if healthy and otherwise satisfactory germination is expected. And here I may mention, in a cold exposed aspect, even on a light peaty soil, I find no benefit accrue from early sowing, but in the autumn I know little difference from much more favourable situations. In the maturity of such crops as Onions, Kidney Beans, early Broccoli, &c., I find Mr Simpson's theory in his article on cropping in the 'Gardener' for August specially applicable in this island; as, for example, Kidney Beans which were sown here on June 1st, are vastly superior this day than are those sown on May 1st. But to return to the soils, the first was sown on a cold clayey soil and the latter on well-wrought peat, which, by the way, had a liberal coat of lime last winter; and it may be worth mentioning that all along an early border where I applied it a marked improvement characterised the crops from others growing close by them. Some have objected to the use of lime in Rhododendron plantations; here, however, in new soil, we applied it to hundreds of them with hitherto no appearance of bad results, and intend to give more in making other plantations this winter. I would like to hear, however, if anything could be advanced against such a practice. Speaking of new soils, I am inclined to think there is a constituent part in certain of them which produces a sort of canker or similar disease on the Gooseberry, which is modified or wholly extirpated according as the soil is more or less cultivated. This never came under our experience till recently, but it is exactly as I have described; and in some old gardens in the island it is quite stamped out, from no other reason, I believe, than the many years' cultivation of the ground. I found the solution used by Mr Graham of Mouswald, Dumfries, in 'Gardener' for December 1871, to be most effective in clearing our Gooseberry bushes here; they are now as clean as any ever I saw. To sum up, in regard to variety of soils there is no alternative but for the cultivator to turn the means at his command to the best account in order to turn whatever extreme in the nature of the soil at his disposal to a proper texture. Much more might be said on the subject, but perhaps even this may not be useless to some of your readers. D. M.

ISLAY.

ONIONS.

HAVING seen Onions very much blighted this season, I am led to make the following remarks on the culture of this most useful vegetable, as it is my opinion that thick sowing and late thinning are partly, if not entirely, the causes of blight.

I have taken particular notice of cottage-gardens this year, especially where there are a number adjoining, as in such cases one sees Onion-beds within less than a stone-throw of each other, and generally they are blighted. On looking for

Digitized by Google

what I consider the cause, I find them too thick, or sown too thickly and thinned late. On examining beds that have escaped the blight, there is in some cases only about half a crop of plants, or the bed has been properly thinned, or is not hemmed in with broad Beans on one side, and Peas or Scarlet-Runners on the other. I will now relate, in as short a space as I can, how I have managed mine, which are now (August) free from blight. The ground was well manured and dug up rough early in the winter. Early in spring the bed was raked over when dry, and drills drawn 6 inches apart. I then lay a 10-feet rod up the drill, and at every 6 inches I lay a few seeds, and so on till the bed is finished. By laying the rod 3 inches further back at the commencement of every other drill, the Onions will come up alternate. The bed is then carefully raked, without disturbing the seed, and lightly tramped. This may appear a slow process, but though it takes a little longer than the old way, the extra time is saved when thinning-time comes. The thinning is done as soon as possible, pulling out all but the largest ones; they will then be in straight lines every way, and look very nice indeed. Where very large Onions are required, they may be 8 or 9 inches apart. No weeds should be allowed to grow, and the ground should be stirred often. Of course, where Onions are required all the growing season, as is the case here, a bed must be sown thickly to draw from, or, what is better, a few sown on a border. Dwarf crops, such as Beet and Carrots, should be sown next them, in order to allow as much air as possible to sweep through them. When sowing, a drill should be missed about every 4 feet, to walk up when sowing and thinning are performed. W. N.

ROYAL HORTICULTURAL SOCIETY, August 7th.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr Thomson, of the Tweed Vineries, Clovenfords, N.B., sent bunches of his new seedling Grape, Duke of Buccleuch. This is a large and very handsome Grape, similar in appearance to the Golden Champion, but differing from it in the form of the berries in the same respect as the Dutch Hamburg differs from the Black Hamburg, in being rounder, and in a prevalence of oblate berries. The flavour is superior to that of Golden Champion, being much richer and fuller. The bunch is ovate and compact, 8 inches long, and the same in width across the shoulders. The berries are very large, roundish, and oblate, of a pale greenish amber colour, and with a large style point. The flesh is tender and very juicy, with a Hamburg flavour. The Vine produced eight of these handsome bunches, is two years old, and is growing in the same house with Black Hamburg, than which it is one month earlier. The Committee admired the Grape extremely, and in accordance with Mr Thomson's wish, appointed Mr Barron to visit Clovenfords, and report upon the constitution of the Vine.

Mr Tillery, of Welbeck Gardens, sent a seedling Nectarine, raised from crossing Balgowan and Elruge. It is a large handsome fruit, and Mr Tillery has evidently secured a cross; but the fruit now produced is not an improvement on the Balgowan. Mr Tillery also sent a dish of handsome Gross Mignonne Peaches, and a fruit of Queen Emma Melon, grown in a box in a Pine-stove, and the soil only the turfy loam from the top of a limestone rock. The boxes are about 4 feet long and 15 inches deep, and three plants are put into each box. About two fruit are left on a plant, so as to grow them of a good size. The fruit exhibited was 6 inches in diameter. Mr J. Lane, gardener to J. Bray, Esq., Pyrgo Park, Romford, sent dishes of Noblesse and Late Admirable Peaches, and a dish of Violette Hâtive Nectarines. Mr Roberts, Holwood Park, Kent, sent

Digitized by Google

a fine dish of Barrington Peaches. Mr Kirtland, of Bletchington, Oxon, sent a dish of Moorpark Apricots.

Mr M. Newman, of the Elms, Hartington, sent a dish of Red Currants called Hartington Wonder, which is the same as Knight's Long Bunched Red. Mr Shore, gardener to Rev. J. P. Heyworth, Westbury-on-Trym, sent a seedling called Shore's Hybrid, which was not considered of sufficient merit to recommend it.

Mr John Henson, gardener, Newark, near Peterborough, sent a seedling Gooseberry called Henson's Seedling, a large, round, dark red, hairy fruit of excellent flavour. Mr J. Beach, gardener to E. J. Herries, Esq., St Julian's, Sevenoaks, sent a dish of seedling Gooseberries called Emma, but which is very similar to other varieties in cultivation. Mr Geo. Kirtland, Bletchington, sent four dishes of Gooseberries of large size. Mr Piccirillo, of Wigmore Street, sent a large Water-Melon, but the flavour was not approved.

Messrs Lane & Son, of Berkhampstead, sent a large collection of admirably grown Grapes, consisting of Black Hamburg, Foster's White Seedling, Buckland Sweetwater, Muscat of Alexandria, Frankenthal, Duchess of Buccleuch, Chaoush, and Muscat Muscadine. This meritorious exhibition received a cultural commendation.

Messrs J. & C. Lee, of Hammersmith, sent a dish of Imperial Long Pod Kidney Beans, 7 to 8 inches long in the pod, and which were approved of by the Committee as a fine fleshy-podded Bean. Mr Walter, of Calne, sent a seedling Pea, which was to be grown in the garden at Chiswick before an opinion could be given upon it. Mr Piccirillo sent new Orange Garlic, and Naples White and Naples Red Onions, the latter of enormous size, some of the specimens being 8 inches in diameter, and weighing 4 lb. 2 oz.

Mr Berkeley reported that the roots from Hayling Island shown last year as Shallots proved to be the Potato Onion. Mr Record, of the Gardens, Hatfield, sent large clusters of the fruit of Habrothamnus elegans, which created much interest from the rarity with which the plant produces so much profusion of fruit.

Prizes were offered for the best dishes of early Plums. The first went to Mr J. Clark, gardener to Major-General Claremont, Roehampton, for Rivers's Golden Gage; the second to Mr J. Beach, gardener to C. J. Herries, Esq., St Julian's, Sevenoaks, for Early Orleans. Mr Beach was also first for the best collection of Gooseberries, Mr Earley, Valentines, being second; and for the heaviest six Gooseberries, the prizetakers were Mr G. Kirtland, Bletchington, and Mr J. Kirtland, Albion Nurseries, Stoke Newington, Mr Beach being third.

Calendar.

KITCHEN-GARDEN.

THE present month is one in which garden operations are less pressing than usual; but this season must be in most places an exceptional one. The continued rains, which have so often put a stop to all outside work, must have kept many things far behind. The extra labour which has been necessary to keep crops from being smothered with weeds, has also been much against the progress of the cultivator. Our own difficulties were never greater in this way, but many of the crops were never much better. Peas have grown well, but do not fill well in the pods. Lettuce are extra fine. All the Brassica tribe have done well. Carrots are very poor, having suffered much from vermin. Onions on heavy ground are large, but do not

Digitized by Google

offer to ripen well. A quantity on lighter ground are small-necked, and ripening better. The early Maggiolas have turned in early, and seem to be a useful kind new to us. Celery has done well, but the early crop is more inclined to "bolt" than usual, probably from the continued battering of the rain on the surface of the soil, certainly not from drought. Potatoes are moderate as to crop, but of fair quality. Veitch's Ash-Leaf Kidney is very good. One thing I may remark, that where ground was extra trenched, the less the crops grown in it have suffered from the wet, and I observe the deepest ground always carries its crops best in extra-dry seasons. Where there is ground to prepare for such crops as Cabbage, let it be well trenched, and if manure is rank turn it two spades down; solid decayed material is best for most crops, and may be turned in under the top spade only. Strawberries which are to be destroyed, and well trenched down, suit Cabbage well. When planting the latter, a double quantity may be put in; and if not wanted, or if many have not run to seed, when spring comes round the crop can be easily thinned, and the plants placed in other quarters. We like to provide for casualties. We saw whole breadths in some gardens last season all gone to seed. Thin Spinach in time; it may stand 6 inches apart. Plant plenty of Lettuce: we have found it stand well between Cabbage for two seasons past, and in good condition to lift and plant in March, when their room was required. The shelter from the Cabbage plants seemed to be serviceable. Damp is the greatest enemy to these plants, and a ridge or sloping border is essential to secure a good early crop. Endive may be planted in the same way; blanch small quantities for use when fit. Flower-pots placed over, tying up close to exclude air and light from the hearts, or slates laid over them, all answer the purpose of blanching them. Encourage the ripening of Onions by twisting their necks; a slight pull may stop the growth of thick-necked ones. Dust soot among autumn-sown Onions coming through the ground. Store ripe ones in dry cool quarters. Earth up Celery a month before it is wanted for use. Keep the hearts clear. A good watering with manure-water before earthing is done is of great service in securing crisp produce. Loose earth thrown over later crops may do much to keep out drought if it should set in. Lime dusted among the growing plants may dislodge slugs, &c. Prick out Cauliflowers to get them ready for hand-glasses, and when they are ready for planting, lift them carefully with the roots unbroken; and nine to each handlight may be planted, as they can be reduced to five in spring. Successions of Cauliflower for main crops may be pricked out on ridges or sheltered borders. Frames can afterwards be placed over them for protection. Radishes for chance crops may yet be sown on warm positions. Keep up supplies of small Salads: if frames can be used for the purpose, the crops will be the more certain. American Cress and Golden Cress are very useful in winter. Tomatoes may now be kept clear of all growths and rank leaves; keep the fruit exposed to sun and air. Thin them if set too thick. Keep Ghirkins and ridge Cucumbers well thinned, topping the plants above each fruit. A frame placed over a quantity may do much to prolong the supply. Mushroom-beds may be made for succession, and droppings collected and prepared for other beds: dry them, and avoid burning. M. T.

FORCING DEPARTMENT.

Pines.—A second lot of suckers from plants that have recently ripened, and are now ripening their fruit, will be ready to pot. If potted late in the month, 6-inch pots for Queens, and 7-inch ones for stronger-growing varieties, will be sufficiently large. Select a rather light soil with a large proportion of fibry matter in it, and mix a little bone-meal and soot with it—a 6-inch pot full of each to a barrowful is enough. Pot firmly, and in plunging them do not crowd them. Keep them near the glass, and let them have a bottom-heat of 85°, with a temperature of 70° at night, until they are well rooted, after which 5° less at top and bottom will be warmth enough. Should the weather be bright after they are potted, shade slightly for an hour or two at mid-day, and gently dew them over through a fine rose

Digitized by Google

three or four times weekly until they have rooted. That portion of the stock intended to fruit early next season should now have less water given to them, more especially if the weather be sunless and damp. Enough should be given them to just prevent the tissues from shrinking. All syringing of these overhead should cease, and by the end of the month the night temperature should not be higher than 65°. Those that are not so forward, and that are intended to start in succession, may be encouraged to grow more freely for a week, and will consequently require more moisture, and to be shut up earlier in the afternoon with a higher temperature. But in the case of all growing Pines avoid a forcing temperature at night and in sunless damp days, and advantage should be taken of bright weather for accelerating growth where such is required. All fruit now colouring should have a free circulation of dry warm air about them, and be kept comparatively dry at the root. When more are ripening at one time than are sufficient for the demand, remove a portion of them, pots and all, when half coloured, to a dry position, where they can be kept in good condition for several weeks. Cayennes, Charlotte Rothschild, and other late autumn and winter varieties, will now be swelling their fruit rapidly. The night temperature for these should range from 70° to 75°, according to the weather. Shut them up early with sun-heat, and supply abundance of moisture to the atmosphere, more by sprinkling all vacant places and the surface of the bed than by heavy syringings overhead, which has a tendency to grow large unsightly crowns. Water them with manure-water in a weak state every time they require watering. If a few leaves are removed from the collars of the plants, and any inert soil on the surface removed, and a top-dressing of turfy loam and horse-droppings be applied, such will stimulate the plants, and cause them to swell finer fruit. If a stock of soil has not been secured for another season, no time should now be lost in getting it, and placing it under cover of an open shade if possible.

Grapes.—Vines intended to be forced to ripen crops early next season will be ready to prune by the end of the month, and the operation should not be delayed. After they are pruned, keep them as cool as possible, and let all cleaning connected with them and the vinery be effected at once. If necessary, remove the inert soil on the surface of the border, and replace it with equal proportions of loam and manure. This surfacing applies with equal force to all Vines from which the fruit is cut. It is always a good plan to remove the surface soil, and replace it with fresh rich soil over the roots. While the foliage remains on the Vines, there is a chance of their rooting slightly into the new soil before the fall of the leaf. As the past summer has been very wet, some Vines may have grown vigorously, and wood may yet be spongy. In such cases fire the vinery after the fruit is cut for a time, in order to ripen them, to which a circulation of dry warm air is most conducive. Recently-planted Vines that have made vigorous growths may require like treatment to thoroughly ripen the wood, and the stronger they are the more they will require of it. All green lateral growths should be gradually removed from these, so that light and air may play more freely about the canes, but avoid the common practice of removing great quantities of these where they exist at any one time.

Early pot-Vines intended for early forcing should now be thoroughly ripe and ready for pruning, which operation should be attended to at once, and then place the Vines in a cool position, where they can rest until required for forcing. Look over all Grapes that are thoroughly ripe twice weekly, and remove all decaying or defective berries, for a few soon affect a whole bunch. Muscats not yet quite ripe will require a little fire-heat to assist their colouring; for unless they become quite coloured this month, they never keep well nor long. All late crops intended to hang through the winter should be ripe by the end of the month; ripened later, with less light and sun, they are never so well flavoured, nor do they keep so well. They, too, should be assisted with a little fire-heat and a circulation of dry warm air, leaving a little on all night to prevent moisture condensing on the bunches. As healthy foliage is of great importance to the successful ripening and keeping of the fruit, if there is any red-spider let it be attack-

Digitized by Google

ed and got rid of wherever detected. There is no more effective, nor perhaps a quicker way in the long-run, to get rid of it than hand-sponging the leaves. In wet localities subject to heavy autumnal rains, it is a good plan to cover all outside borders by the end of this month with wooden shutters or any other protection from drenching rains. A sprinkling of old Mushroom-bed manure over inside borders will prevent evaporation, and keep the soil from cracking, and prevent over-dryness without watering.

Peaches.—Crops in cool houses will now be ripening, and require attention to protect them from flies and wasps. Look over them regularly every day and gather all that are ripe, so as to prevent as much as possible any of them dropping off. Nets or netting should be fixed to catch any that may drop off. Peaches can be kept a long time in good condition by gathering them before they are "dead ripe," and placing them in close tin boxes in an ice-house; we have kept them in this way for nearly fourteen days, and then exhibited them in good condition. Attend to last month's directions in the case of trees from which the fruit are all gathered. Wherever there is any red-spider, syringe the trees vigorously to get rid of it. Where the growths are strong, and any doubt exists about their ripening thoroughly, a little fire-heat and a circulation of dry warm air will assist the process.

Figs.—Where the second crop is all gathered give the trees an occasional washing with the engine, to keep the foliage fresh and healthy to the last. Where the late crop is swelling off, give frequent waterings of manure-water if the trees are old, and not in an over-luxuriant condition. But discontinue the syringe and manure-water when the fruit are finishing off, and keep a circulation of warm air about them; and unless when they have to be packed and sent to a distance, do not gather the fruit till it becomes soft and pulpy. Early-fruiting plants in pots may now be exposed to full sun in a warm place outdoors.

Melons.—Now that the nights are longer and cooler, apply fire-heat to prevent the night temperature from declining too much; 70° to 75°, according to the state of the weather, should be the temperature for crops swelling off. Be careful now not to water crops that are fully swollen and near the ripening point, or they will be sure to crack and be spoilt. Keep ripening fruit dry and warm with a night heat of 70°.

Cucumbers.—Water plants in full bearing with manure-water, and add a little fresh rich top-dressing to the border. Keep them at 70° to 75° at night. If mildew appears, as it often does towards autumn, dust with sulphur, and keep the house warm and airy. Plants intended for winter fruiting will be ready to plant by the middle of the month. Give them a rather light rich soil, and grow them on with a good supply of air and as much light as possible, so that their growth may be robust, and the more able to cope with the shorter and duller days of late autumn and winter.

Strawberries in Pots.—These will now be well established, and will in dry bright weather require copious supplies of water. Water frequently with manure-water. Keep them free of runners, and if they have become crowded give them more room. See that they are not rooting into the ground in which they are standing, and prevent their so doing by lifting every plant, and rubbing off any roots that may be passing from the pots.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

Digitized by Google

POLYANTHUS.—I see one of your readers inquiring after some good Polyanthus. I send you a list of a few good named sorts that I grow. I have been a grower of this lovely spring flower for twenty years, and have collected all the best named kinds that I could get, and have raised many seedlings myself. The best Polyanthus that I know or have seen is called after my son. I have many letters from my friends that are old Polyanthus-growers. I have some fine seedlings that I have not yet parted with; and I should not object to send you a chapter on the way that I grow them, if my kind friend Mr Read would do the same, as he and I have had much to say about them.

List of sorts that I grow, and have stock of some of them that I could part with:—Lord Lincoln, fine; Beauty of England, fine; Buck's George IV.; Exile, fine; Lord Rancliff, fine; Black Prince; King Fisher, true fine; Formosa, true fine; Lancer, fine; Charles Allsebrook, fine; President, fine; Collins Prince Royal; John Cunningham; Cox Prince Regent; Thomas Mallet, fine; Lancer Marster, fine; Free Bloomer, fine; Princess, fine; John Spencer, fine; Mrs Allsebrook, fine; Lord Elcho, fine; Warrior, fine; Telegram; 50 Plants Cheshire Favourite, Large Stock, fine. WM. ALLSEBROOK.

POLLY.—The question asked by Polly as to where the best-named Polyanthuses may be seen, scarcely admits of a direct answer, as Polyanthus-growers would say in their own garden. And I suppose Polly would scarcely take a trip across the nation, in the blooming season, for the purpose. However, if Polly will communicate with me, through the Editor of the 'Gardener,' I will give her any information on the subject she may require—that is, so far as my own knowledge extends. DERA.

We are informed that prizes for collections of Economic Entomology are offered for competition in 1873, and the following rules relating thereto have been issued by the Royal Horticultural Society: £10 for a collection of British insects injurious to some one order of plant used for food, as Cruciferæ, Leguminosæ, or Corn. The order may be selected by the competitor. £3 for a miscellaneous collection of British insects injurious to plants used as food. £5 for a collection of British beetles injurious to timber and fruit-trees either growing or felled. £2 for a collection of British insects injurious to some one timber or fruit tree. The insects to be exhibited in their various stages of development, accompanied by specimens, models, or drawings of the injuries caused by them. The collections to be sent in addressed to James Richard, Assistant Secretary, Royal Horticultural Society, South Kensington, S.W., on or before November 1st, 1873.

Mr Jones, who has been gardener to Lord Leconfield at Petworth for the last fifteen years, has been appointed Superintendent of the Royal Gardens at Windsor.

C. S.—The following are very handsome perpetual Roses: Red and Crimson—Admiral Nelson; General Jacqueminot; Marechal Vaillant; William Paul; Beauty of Waltham. White—Louise Dargens; Queen Victoria; Lady Emily Peel. Acidaile, white blush centre. Duchess de Thuringe—white tinged with lilac—Souvenir de la Malmaison, flesh-colour. The last three are Bourbons, but perpetual bloomers. Gloire de Dijon, yellow suffused with salmon, is excellent for a trellis, and very continuous in its blooming. Two of each of those named will be enough for your space. Get them on the Briar stock. They can all be pegged down, but to insure success the soil must be rich, and they will require attention regularly in pruning, &c.

I. F.—The Muscat Grapes you name are all first-rate, and you will do well to plant them. Make the border 3 feet deep at front of vinery, sloping to 2½ feet at the front of border. We would consider concrete unnecessary on such a subsoil as you describe. We approve of the way you purpose making the border.

POLYPODIUM.—We quite coincide with your proposed arrangement in your new conservatory. You can scarcely do better; drain your bed of soil well, and avoid many ingredients in making up the bed. Good friable loam, with a few bones and some charcoal, we like best. We are glad to know that our previous advice has saved any further scalding in your Grapes.

CIRYCIUS.—Gazania splendens grown in rich soil is the best bedding orange-coloured flower we have. It is a deep orange, and dwarf.

Digitized by Google

THE

GARDENER.

OCTOBER 1872.

SELECT DENDROBIUMS.

MOST Orchid-growers are fond of Dendrobes because they are easily grown, and the ladies like them because they produce an abundant supply of flowers for every month in the year. Nearly all the Dendrobiums are beautiful; but some are so strikingly handsome that they merit notice under the above head. I said they flower every month in the year, but this much might almost be said of the fine old Dendrobium nobile and its many varieties alone: at any rate, by a little gentle encouragement while growing, they may be had in flower very early in the autumn; and if a few plants be placed in a cool airy house, they may be retarded so as not to produce their flowers until late in the spring: hence by a little judgment we may greatly prolong the supply of cut-flowers—generally a copious one—from this species alone. Dendrobium nobile should be grown in quantity—that is, by the dozen—by all gardeners in large establishments where cut-flowers are in demand during the winter and spring months. It will flourish in any ordinary intermediate house or plant-stove; while if a few plants are required rather earlier, they may be placed in any of the forcing vineries that are at work, and the genial heat and moisture will greatly assist their growth. After their growth is made, they should be placed in a sunny position, and a little more air admitted so as to thoroughly ripen the bulbs, and then flowering freely is but the natural consequence. Easy as is the culture of D. nobile, I have known many fail with it; but it is no use expecting flowers from any plant, whether it be an Orchid or not, unless the growth is strong and healthy, and properly ripened, or perfectly developed. There are two other free-flowering Dendrobiums—viz., D. transparens and D. moniliforme—which will grow and flower freely under the same treatment as D. nobile.

Digitized by Google

I think I hear some of my readers exclaim, "Yes! but these are not select Dendrobiums." Well, to be candid, I admit they are neither "new nor rare," but I maintain that they are select, and I have no doubt but that they are the three best Dendrobes to grow for cut-flowers.

Now before I finish my gossip on Dendrobes, we will just glance at a few of the new or rare kinds, so as to suit, if possible, all tastes.

D. Bensoniæ.—This is one of the prettiest white-flowered species in cultivation, and comes from that rich depository in Dame Nature's nursery, Moulmein, where it was discovered by Lieutenant-Colonel Benson, growing upon trees on exposed ridges. The flowers are in shape very much like the older D. nodatum, but the sepals and petals are pure white, and the white lip has a blotch of orange in the centre, and two large spots of dark crimson brown on each side. These dark spots and pure white petals contrast beautifully with the bright golden orange centre of the lip. It generally flowers in June or July, and lasts three to four weeks in beauty.

D. M'Carthiæ.—This is a very distinct rosy purple, large-flowered species from Ceylon, where it hangs from the stems and branches of trees. It grows freely in heat with plenty of moisture, and bears its flowers in racemes of from three to five. It flowers here about July or August, though it is the "Mayflower" of its native habitat. A plant of this species has been shown with over 100 flowers upon it; and when grown to this perfection it is an object of beauty, like Paul's Roses, "to be once seen and thought of for ever."

D. chrysotis.—This is perhaps the best of the yellow-flowered Dendrobes, and comes from Assam, the native home of the cœrulean Vanda. It was introduced by James Brooke & Co., Manchester, and received a first-class certificate from the Royal Horticultural Society, September 21, 1870. The original plant is now in the celebrated Manley Hall collection, and bears over twenty spikes of its golden crimson blotched flowers. The lip is remarkably fringed, quite as much as D. Devonianum, while its flowers are very freely produced. It will soon become a favourite with Orchid-growers, possessing as it does a strong vigorous constitution.

D. infundibulum.—A fine, large, white-flowered Dendrobe from the mountains of Moulmein. It belongs to the "nigro-hirsute" or "black-haired" section, which includes other forms of this plant, as D. formosum, and its variety "giganteum," D. eburneum and D. Jamesianum. Sepals and petals pure white, broad, like those of a Phalænopsis amabilis, but whiter if possible. Lips funnel-shaped, hence its specific name, with a prolonged spur 1 inch long. I saw this flowering finely at Meadowbank in May of the present year.

Digitized by Google

D. bigibbum.—This is an old plant, having been introduced from the north-east or tropical coast of New Holland nearly twenty years ago; still it remains one of the rarest, and, at the same time, one of the most distinctly beautiful of all Dendrobes. In cultivation it requires the heat of the Indian house, and considerable moisture both at the root and in the atmosphere, and it should be freely exposed to the sun as its growth becomes matured. With this treatment it will be found to flower freely. Bulbs about 1 foot high, cylindrical, bearing 2 or 3 leathery leaves, 2 to 4 inches long. Spikes produced from the apices of the bulbs, 7 to 12 inches long, and bearing 5 to 10 flowers. Flowers with broad rounded petals, rich glowing purple. Lips deeper purple. It generally flowers about September, and lasts a fortnight or three weeks in perfection.

D. crassinode, Burmah.—This species is very easily recognised, when not in flower, by its curiously-knotted stems. These vary from 1 to 2 feet in length, and are clothed with leaves when young. In its native habitat it is found growing upon large trees in moist districts. The flowers are very beautiful, and coloured similar to D. Wardianum, 2 to 2½ inches across. Sepals and petals white, tipt with rich purple; lip having a bold blotch of yellow in the centre, and its apex tipt like the petals. It is a free-growing species, and blooms freely, but requires exposing to the sun when its buds appear, or they will be deficient in colour.

D. Wardianum.—This is very justly considered to be the best of the genus, so far as the beauty of the individual flowers is concerned. Its growths vary from 1 to 2 feet long, but at Manley Hall, near Manchester, Mr Petch has a noble specimen, with young growths nearly a yard long. Flowers borne, two or three together, on the ripened bulbs. Individual blooms 3 inches across. Sepals and petals white, tipt with purple rose. Lip white, tipt with purple, having in the centre a large yellow blotch, on each side of which is a bold crimson spot. Grows and flowers freely in the Indian house, and should be in every collection of any note. F. W. B.

FIG-CULTURE.

NO. I.

"THE Fig of our gardens is the Ficus carica of botanists. The name Ficus, applied to this very anciently-known fruit, is most probably derived from Feg, its Hebrew name; that of Carica is from Caria, in Asia Minor, where fine varieties of it have long existed. According to various authors, it is a native of Western Africa, Northern Africa, and the south of Europe, including Greece and Italy. It is

Digitized by Google

certainly indigenous to Asia Minor, but it may have been then introduced and naturalised in the islands of the Mediterranean and the countries near its shores, both in Europe and Africa.

"Figs have been used in the East as an article of food from time immemorial. They were amongst the fruits brought back from Canaan by the Israelites sent by Moses to report on the productions of the land. We read of a present having been made to David of 200 cakes of Figs. They were probably used chiefly in the dried state. The drying is easily effected in a warm climate by exposure to the sun's rays, in the same way as those Grapes are dried which are called from that circumstance Raisins of the sun. Like the Grape, the substance of the Fig abounds in what is termed Grape-sugar. In drying some of this exudes, and forms that soft white powder which we see on the imported dried Figs. They are thus preserved in their own sugar, and rendered fit for storing up as an article of food.

"Figs were considered of such necessity by the Athenians that their exportation from Attica was prohibited. The Figs of Athens were celebrated for their exquisite flavour, and Xerxes was induced by them to undertake the conquest of Attica. The African Figs were also much admired at Rome, although Pliny says it is not long since they began to grow Figs in Africa. Cato, in order to stimulate the Roman senators to declare war against Carthage, showed them a Fig brought from thence. It was fresh and in good condition, and all agreed that it must have been quite recently pulled from the tree. 'Yes,' says Cato, 'it is not yet three days since this Fig was gathered at Carthage; see by it how near to the city we have a mortal enemy.' This argument determined the senate to commence the third Punic War, the result of which was that Carthage, the rival of Rome, was utterly destroyed.

"The Fig may have been introduced into Britain along with the Vine by the Romans, or subsequently by the monks. But if it had, it seems to have disappeared till brought from Italy by Cardinal Pole, either when he returned from that country in 1525, or after his second residence abroad in 1548. In either case, the identical trees which he brought were planted in the garden of the Archiepiscopal Palace at Lambeth, and have certainly existed for more than 300 years. This proves that the Fig lives to a great age, even under less favourable circumstances than it enjoys in its native country. In this country a chalk subsoil and a climate like that near the south coast appear to suit the Fig best. There the tree grows and bears as standards. They are liable, however, to be killed to the ground in winters of excessive severity, but they spring up afresh from the roots. There was an orchard not exceeding three-quarters of an acre at Sarring, near

Digitized by Google

Worthing, in Sussex, containing a hundred standard Fig-trees. About 100 dozen ripe Figs were usually gathered daily from these trees during August, September, and October. By selecting similarly favoured spots, it may be fairly concluded that this country could supply itself with abundance of fresh Figs. As for dry ones, they are obtained in large quantities from Turkey, the Mediterranean, and other countries, but the supply for centuries back has chiefly been from Turkey. The import has been as much as 1000 tons a-year; and now that the duty is taken off, the quantity imported will doubtless be much greater.

"The inflorescence and the fruit of the Fig are very distinct in their character from other fruits. It consists of a hollow fleshy receptacle with an orifice in the top, which is surrounded and nearly closed by a number of imbricated scales—as many as 200, according to Duhamel. The flowers, unlike those of most fruit-trees, make no outward appearance, but are concealed within the Fig on its internal surface; they are male and female, the former situated near the orifice, the latter in that part of the concavity next the stalk. On cutting open a Fig when it has attained little more than one-third of its size, the flowers will be seen in full development; and provided the stamens are perfect, fertilisation takes place at that stage of growth. But it often happens that the stamens are imperfect, and no seeds are formed, nevertheless the fruit swells and ripens." *

The Fig is considered one of the most wholesome of fruits, both in a dried state and when newly gathered in a ripe condition; and seeing that it is a fruit which yields ample returns for the care that it requires, it is a wonder that it is not more generally allotted a more prominent place in glass houses in this country. Still its culture, both in pots and planted out in prepared borders, has been considerably extended of late years, and it is evidently a fruit rising in favour with all possessors of gardens in which it can be accommodated under glass. Its cultivation under glass has long been practised, but, strange to say, it has generally occupied the position of an interloper, and been assigned a place merely on the back wall of a vinery, or in pits under the shade of Vines and Peaches. Under such circumstances it never can develop its capabilities, either as to its prolific fruit-bearing character or flavour; and no wonder that under such circumstances it has not been much thought of. It is now treated differently, and more in accordance with its nature and requirements; and houses entirely devoted to Fig culture, either in pots or planted out, are daily becoming much more common. And when its excellence as a fruit, and the fact that, unlike most other fruits, it bears two and even three crops yearly, are considered, the wonder is that it is not more thought of than it is.

* Lindley's Treasury of Botany.

Digitized by Google

Fig-House.—The successful cultivation of the Fig does not necessitate any peculiar or special arrangements in providing a structure suitable for it, provided it has plenty of light and means of ventilation, and a moderate command of heat. They are successfully cultivated trained on trellises all over the roofs of houses, in all respects like vineries and peach-houses, both lean-to and span-roofed in form; in narrower houses, mere glass cases trained to the back wall like a Peach, or planted out in pits of less dimensions in bush form like a Gooseberry or Currant, or with their roots confined to pots of by no means large dimensions. In short, they are the most accommodating of fruits in this respect, and good crops can be produced

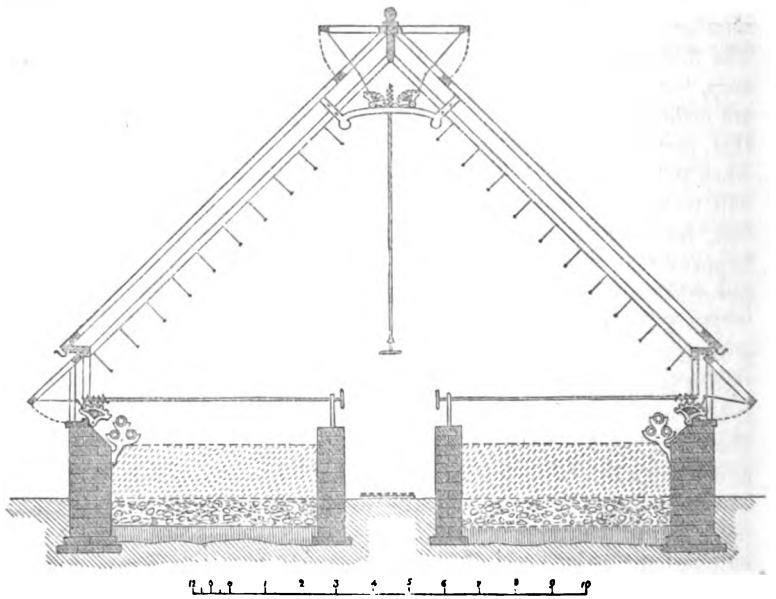


Fig. 5.

in all these forms of erections, provided they are otherwise properly managed. As in the case of all other fruits, we recommend that for early forcing the lean-to form be adopted, and the trees trained near the glass, just like Vines. For late crops the span-roofed form is to be recommended, as providing the greatest fruiting surface at least expense. Fig. 5 represents a span-roofed house well adapted for the latter, and shows also the arrangement which we consider best as to the bed for the soil or border. Over-luxuriance, and therefore unfruitfulness, must always be provided against in the culture of the Fig; hence we recommend the space for the roots to be limited and perfectly under

Digitized by Google

control, and in wet cold localities entirely under glass, at least for some years after the trees are planted. Should their after-condition indicate that they would be benefited by an extension of the border outwards, it can easily be carried out. Like the Peach, the Fig when growing likes a moist atmosphere, and a steaming-tray on the pipes should always be provided, especially when early forcing is practised. The roof should be wired the same as for Vines.

Soil and formation of Border.—The Fig is not by any means difficult to accommodate with soil, provided it is not rich nor resting on a damp bottom. Naturally it is a most luxuriant grower, producing in rich soils immense growth and foliage with next to no fruit. To secure well-ripened fruitful wood, this tendency has to be taken into account, and requires to be counteracted by the constituents of which the border is formed. Two parts loamy soil, such as has been recommended for Vines, but lighter, and one part old lime-rubbish, without any manure of any sort, form a border sufficiently rich for several years without any assistance but water, and it forms an excellent channel for applying manure, either by top-dressing or in a liquid form, when such becomes necessary. These two constituents should be thoroughly mixed together before being put into the bed, and in a dry state. If loam fresh and turfy cannot be procured, common garden-soil that is not highly impregnated with manure can be substituted with success, for, as has been already remarked, the Fig is not by any means fastidious.

Where the subsoil is clayey, or cold and damp, it is undesirable that the roots should have access to it, therefore the whole of the site should be effectually concreted. And to have the individual trees entirely under control, the site for the soil should be intersected by walls formed of brick on bed, to separate the roots of each tree entirely from those of its fellows. This leaves the cultivator every chance of treating individual varieties and trees as circumstances may suggest, without interfering with any other. The width of these spaces should be determined by the length of roof or rafter. For such as is represented by Fig. 5, each compartment may be from 8 to 10 feet, that being sufficient space for each tree. Immediately over the concrete two efficient tile-drains should be led into the main drain, running underneath the pathway, and over the whole bottom broken bricks or road-metal to the depth of 8 inches should be laid, and blended with some finer material, such as coarse sandless gravel, with a turf grassy side downwards: all over this drainage the site is ready for the soil; and to begin with, it should not be filled in more than 20 inches, rather firmly packed, and leaving 4 inches for the addition of top-dressings when such become necessary.

D. T.

Digitized by Google

THE CONSERVATORY FOR OCTOBER.

October is to our mind the most cheerless month of the year. It is the beginning of the "Fall," as the Americans say—the transition month between summer and winter. What has just passed away of the season is fresh on the mind, and we anticipate the dreary months to come. October has often some fragments of summer in it, but also chilly nights and muggy days and cold rains about the middle of the month. Death comes for certain to all the summer decorations of the garden. Poetical people go into raptures over what they call the autumn tints, the yellows and purples, and various shades of the landscape. We never could sympathise with those notions, prosaically associating those shades with decay and death, the precursors of an epoch of dirty lawns, birch brooms, and the deep-sided wheelbarrow. It is also peculiarly a transition month in the conservatory. It does not, like the preceding months, bring something with it naturally for its own embellishment; things must be made to wait for it, unlike the early spring months, when things are made to steal a march on the growing year.

There is, however, no lack of subjects for autumn decoration of the conservatory. Many things peculiar to the summer months may still be had. The great difficulty to contend with is the increasing damp and long cold nights so inimical to the flowering of summer-loving plants.

But, first of all, hard-wooded plants which have been out of doors for the last three months will require to have their winter stations assigned to them, such as large Camellias, Orange-trees, and tender Rhododendrons bristling with buds; the larger plants of winter-flowering Heaths, with flowers about to open; Chorozemas, Cytisuses, Coronillas, Acacias, and more of a like nature which have had their constitutions strengthened for the winter by their outing, and will bide their time, though a few early blooms will yet be open.

Fuchsias, especially young plants, struck in spring and grown on liberally in cold pits, are famous for October. They stand the damp atmosphere well. Zonale and other Geraniums of the scarlet section, kept in reserve throughout the late summer months, with the flower-buds pinched off and fed at the root with manure, will yield a crop of flowers in the late autumn if the weather is sunny throughout the day. They are, however, most susceptible to damp, especially the double varieties, and should have the driest part of the house and near the glass. Achimenes of the small flowering scarlet sections are also useful, but, like the Geraniums, want all the light possible. Young late plants of Allamandas, with their gorgeous yellow blossoms, will stand some time if kept from drafts, and lighten up the heavy colouring of the other plants. Plumbago capensis on the walls and pillars,

Digitized by Google

and Mandevillea on the rafters and roof, with Tacsonia Van Volxemii, will be still in full bloom; also Brugmansias in tubs or planted out, than which nothing is finer for the conservatory in autumn. The last batch of Balsams and Globe amaranthus, especially the latter in the various varieties of red, striped, and rose-coloured, last a long time, and are far too little grown. Celosia aurea and the red varieties of a good strain may be had any size if sown at different times, or the very best varieties grown from cuttings; all they want is a dung-frame. Scuttellaria Mociniana is a grand plant for autumn, and does perfectly well in a greenhouse in the south, with its bunches of orange-red flowers; should be grown in quantity. Many of the flowering Begonias can be had in fine order in October if some attention has been given to them throughout the summer; early-struck cuttings grown on in pits, after the bedding stuff had gone, or in early vineries or Peach-houses, will now be in fine bloom. The old Fuchsioides is still as good as any in its way; Sedenii, Boliviensis, Chelsonii, though newer and of finer colours, are not better plants, and quite as easy to grow. Digswelliana, and the better varieties of nitida, are all valuable for autumn and winter. The double varieties of the Chinese Primula will now be in. We have found them easiest to propagate in the autumn by laying the divisions of the old plants in their pots, earthing-up the stems with fine sandy soil. When struck, which they soon do in the moist autumn, pot them off singly in small pots, and reserve them for growing on the following season. The early-sown single varieties will also be in bloom now, and with a little liquid manure will flower all the winter. Old plants of winter Cherries, Solanum pseudo capsicum and its varieties, and capsicastrum, which have been planted out all summer, should now be lifted and potted; they will be smothered with their berries, some ripe and many green, to ripen in the course of the winter: they are pretty at all times.

For arranging the conservatory for this season, all crowding should be avoided; plants should be stood sufficiently thin to allow a circulation of air about them, in order to combat damp. No more water should be given than is absolutely necessary, every plant being examined carefully and individually. The climbers on the roof should be thinned out if at all shading the house. Where large plants are arranged on the floor, an edging of Lycopod should be made by planting it in narrow boxes, made in short pieces to put in any desired direction; curved pieces and straight pieces in 3-feet lengths are very handy sizes, width 4 inches by 2 inches. The moss soon covers the whole box with a dense bunch, and behind it can be stood small plants, having the pots effectually hidden, such as Primulas, pots of Dutch Bulbs, or anything dwarf. Even where there are stages, a front edging of this description is desirable. THE SQUIRE'S GARDENER.

Digitized by Google

HINTS FOR AMATEURS.—OCTOBER.

Where fruit-trees are to be planted, the present time is favourable for the work being done; but if trees are yet in vigorous growth and not well ripened (as is the case in many districts), they had better not be taken out of the nursery-ground hurriedly. If they are to be bought, the trees had better be chosen, and their quarters prepared for them. Well-drained ground, good loam, high planting, care taken to prevent the roots from growing down into the sand, tenacious clay or any unsuitable subsoil, are some of the things which require attention when fruit-trees are planted. When choosing trees in a nursery, those which have often been cut back, with old pieces of dead wood about them, injured bark, strong centre shoots which have been allowed to grow at the expense of side shoots, are trees only fit for the fire. Good trees should have from five to nine shoots of equal growth, and all about from 3 to 6 feet long; but we have no objection to small trees of equal growth, with fibry roots and clean healthy bark. Bad trees when planted are often the beginning of unsuccessful fruit-culture. Fruit-trees which are growing to strong wood may be in part lifted or root-pruned. If any roots are growing vigorously downwards they may be cut clean off, and the ground rammed firmly about them. Where there is canker it is generally a sure sign that the tree is too low and damp, or the roots are getting what they should be kept free from. Canker attacks trees which are in localities too cold for them. Early and perfect ripening is a certain specific for disease among fruit-trees. Gooseberry and Currant bushes growing to strong wood do well when lifted now, and those which are unhealthy may be improved by replanting in good healthy soil. No trees should be allowed to make any growth after this season. Attention to fruit-gathering must not be neglected. Handle the fruit carefully; keep bruised ones by themselves for present use; store them dry, and allow fresh air daily till damp is expelled from the room. After so much wet we do not expect Apples and Pears to keep well. Such a season as this proves the necessity of choosing fruits which are suitable to the district where they are to be grown: such Apples as Stirling Castle, King of Pippins, Lord Suffield, and Aitken's No. 2, are seldom known to fail in any district. Late Plums and Currants still hanging can be kept from flies, &c., only by gauze or hexagon netting. Pears are quickly destroyed by birds. Peaches which are not ripening well should have all laterals kept from growing, and large gross leaves may be cut through the middle.

To keep the flower-garden anything like creditable, a great amount of work must be done. The continued rains will have destroyed many of the best of the flowers as they come into bloom. Where foliage

Digitized by Google

plants have been grown in large proportion they will be very satisfactory. We may name a Geranium which we found in a nursery in Brentwood, which has stood the rains and drought of the last four years better than any others we have tried; and it is not well known: its name is Chieftain; flowers in the way of Vesuvius, but larger and of better substance. Keep dead petals and decaying leaves picked off as far as can be done. Rolling, sweeping, and weeding will require extra attention. Lime-water will keep worms from working in lawns, and salt may answer better for this purpose on walks. Valuable plants which are in danger of frost should be lifted in time. What are to be lifted from the flower-garden are not safe after the middle of the month. Let tender things have attention first, and pot them in sandy loam mixed with a little clean leaf-mould; trim in the roots pretty close, and take off a large proportion of the leaves, and pot them in as small pots as will contain the roots; water well at first if the soil is at all dry, and keep them from damp afterwards; a little heat will do much to help them on. Cuttings which are not well rooted may be helped on with a little heat. Calceolarias may be taken off now. They do well in earth or turf pits planted out in sandy loam. "Coddling" is the ruin of Calceolarias. Prepare beds as soon as empty for winter and spring occupants, whether they may be bulbs, annuals, shrubs, herbaceous plants, or "coloured" Kale. Manure given now, and trenched or dug down, may save much work by-and-by. Bulb-planting may be done as early as space is ready for them. Tulips edged with Crocus do well. Arabis, Violas, Polyanthus, Pansies, Hepaticas, and many other useful things, are greatly in use now for filling beds in winter. They can be easily kept in any spare corner, and are very cheerful-looking in the spring months. Mixing of bulbs with these foliage and spring flowering-plants is an interesting system of decorative gardening. The trimmings of shrubs, such as Hollies green and variegated, Aucubas, Yews, &c., make a cheerful appearance in the dark days of winter, and often do as well as dwarf shrubs. Shrub-planting may be continued. A good mulching of rotten leaves, grass, or light manure, answers well for most kinds of shrubs, Coniferous plants especially. Keeping out drought and frost is of great importance with autumn-planted shrubs and trees. None should be allowed to shake by wind; they should be secured to stakes. Roses may be planted as soon as ground can be got ready; deeply-trenched, well-manured soil of a tenacious nature is what they grow and flower in well. Keep old decaying flowers off, and look out for suckers, which grow rapidly at this season. Cut in Climbers a little, and secure the young growths from wind. Chrysanthemums will now be well forward. Clean pots, free drainage, clean surfaces, manure water, plenty of light and air, are their chief

Digitized by Google

wants. Frames in which Cinerarias, herbaceous Calceolarias, Primulas, Pelargoniums, and other plants, have to remain in late in the season, should be matted up on frosty nights. A thatching of straw or Evergreens placed round the frames will be of service in severe weather. Keep Camellias and Oranges washed to prevent scale from doing mischief. Acacias, Cytisus, and all free-growing plants, should have plenty of water and air, especially those coming into flower. Surfaces kept clean and well stirred will do much for the health of the plants. Mignonette must have plenty of light and air, giving the plants free exposure when the weather will allow it: a close damp atmosphere is fatal to Mignonette in pots. Get plenty of Violets ready for forcing: those in pits and frames only require to be kept from frost. China and Tea-scented Roses will flower well late in the season if kept growing freely: good drainage and healthy soil are necessary to secure free growth. Fire-heat should only be used when absolutely necessary: plenty of air with a little fire may be necessary to dry damp structures. Let forcing bulbs have attention before they grow much under their covering. Remove them when ready to cool airy frames, and introduce them to gentle heat as required; a bed of leaves gives a gentle bottom-warmth. Nothing should be risked out if they are likely to suffer from frost. Air and water should now be applied judiciously, giving enough moisture to reach the whole mass of roots, and air always when weather is not severe. Cold draughts are very injurious, even to hardy plants. Heaths always require abundance of air, but young growths suffer from cold drying currents. M. T.

THE CHINA PRIMROSE.

This old-established favourite winter flower receives little attention comparatively at the hands of horticultural writers. Perhaps owing to its being almost universally cultivated, it is assumed generally that its habits and requirements are universally understood and attended to, and on this assumption the name of the China Primrose is rarely to be seen in the pages of horticultural journals. Be this as it may, my observation induces me to think that its habits and requirements are not understood; or if understood, not attended to in all quarters so well as they should be. Except when large demands are made for winter decoration of conservatories and rooms, it is very generally treated in rather off-hand fashion. The seeds are duly sown, the seedlings are pricked off sooner or later according to convenience, and the plants get some little attention as to watering and potting afterwards; but anything like generous or special cultivation is not practised generally, so far as my observation goes. The difference between

Digitized by Google

a liberally-cultivated China Primrose and a starved one is pretty much the same as the difference between other well and ill conditioned subjects, whether animal or vegetable, both as regards beauty and capability for work or usefulness. Feed it well while it is young, and, like your well-reared horse, it will meetly reward your care and kindness in due season; but neglect or insufficiently supply its wants in its early days, and like the same animal it will fail you for lack of stamina when you most need its aid. A first consideration, therefore, in the cultivation of the China Primrose, is abundant supplies of food in the early stages of its growth, and indeed at all stages; and this is, so far as I have observed, the point most missed or neglected. But in giving the details of good cultivation it will be best to begin at the beginning.

The time to sow must be determined by the time you want to have the plants in bloom. My practice for a good many years has been to keep as many as I wanted of the latest sowing, for the purpose of growing on as the first batch of blooming plants the second year. As soon as they begin to fall off in flowering in April or May they are turned out of their pots, and the ball is reduced slightly, and they are repotted in the same size of pots. After they have filled these, they are shifted into pots a size or two sizes larger, according as the plants are wanted larger or smaller, or earlier or later in bloom. These begin to flower in September, and last till the first batch from seed sown in April come in. So well satisfied am I with this practice, that I venture to recommend it to all who like myself have to provide for an early display in large well-grown plants. The plants are much less trouble in spring than very early batches of seedlings; and having very much the start of them in acquired bulk, they can more quickly be grown into specimens if these are wanted. With these in hand the first batch of seed is sown in April, and the second or last in June. The plants from the former succeed the year-old plants in November, and are by that time as well developed; while those from the last batch come in in February, and carry the display on till April or May. A light compost of about equal parts loam and leaf-mould is the most suitable for sowing the seed in, and a free allowance of sharp sand should be well incorporated with it before putting it in the seed-pan. Sow thin and cover lightly. The seeds grow most freely in the temperature of a propagating house or frame; but those having only a greenhouse will succeed perfectly though more slowly in it, if all other necessary conditions are properly attended to. A square of glass laid on the top of the seed-pan or pot to prevent excessive evaporation will facilitate and insure healthy germination of the seed in any case, but especially so in the dry and airy atmosphere of the greenhouse.

Digitized by Google

When the plants are fit to handle, let them be pricked off into 2- or 3-inch pots before they become matted and crowded at root and top. When well established in these, they should be potted in 4- or 5-inch pots, taking care they do not become pot-bound at any stage, till they are finally shifted into the blooming-pot. The first batch of seedlings are placed in a partially-spent cutting or Cucumber-bed, where they may enjoy a temperature of 55° or 60° till they fill their first pots; and when shifted a second time they are put in a cold frame, and are raised on a bed of coal-ashes close to the lights. The plants from the last sowing raised in heat are gradually inured to a lower temperature and freer ventilation, till they are, by the time they are fit to prick off, sturdy enough to endure the temperature of a cold frame, whence they are not removed till September, when the temperature begins to decline at night lower than is favourable to their free growth. The routine of management is very simple throughout the summer, and consists of shifting as required, careful attention to watering, shading slightly from bright sunshine, keeping clean, constant ventilation night and day, and light sprinklings over-head in the evenings of hot days. In September they should be removed to a warmer temperature, say 50° or thereabouts; and the house cannot well be too light and airy in which they are to be wintered. The size of pot in which they are intended to bloom must be regulated by the objects in view and the time they are wanted to be in flower. As large a specimen as may be desired may be grown in a 7- or 8-inch pot. In these you may have plants from 1 foot to 18 inches diameter, well furnished with crowns that will throw up a maximum of flowers; but for general purposes, and especially for flowering well in the dark days of December and January, plants in 6-inch pots are the most serviceable; and I have often found a goodly number of moderate-sized plants in 4- or 5-inch pots very handy and useful in room as well as conservatory decoration. As to soil, I have found pure loam and sand—the latter in greater or less quantity, according as the texture of the former was friable or adhesive—the best after the first potting, at which a lighter compost should be used, making up for any deficiency in its nutritive qualities by liquid manure rather than by manurial admixtures. A very important point is drainage. The China Primrose delights in regular and free supplies of water, but is very impatient of stagnation; therefore drain well, and correct any defects in this respect as soon as observed. Double China Primroses are rather more troublesome to cultivate than the single varieties, but when well done they amply repay the extra trouble and care expended, being more lasting and suitable in cut-flowers, if not more beautiful. Good semi-doubles, and occasionally fairly full doubles, are procurable from carefully-saved

Digitized by Google

seed; but the only way to propagate good sorts is by cuttings taken off with a heel, and rooted in small pots singly in sandy soil in bottom-heat. They require a lighter compost than the more vigorous single varieties: it should be composed of about equal parts loam and peat. Greater care is necessary with regard to drainage and watering, during winter especially; they should never be allowed to get very wet, while the other extreme is equally to be avoided. They are comparatively slow to increase in size, and should be grown on from year to year, shifting them into fresh soil once or twice a-year, according to circumstances. W. S.

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

PETUNIAS.

PETUNIAS are highly ornamental and free-flowering. Many of the double varieties, when grown into large well-bloomed plants, are very handsome at this season. They will grow in a compost of loam and leaf-mould with a little of an old Mushroom-bed put through a half-inch sieve, all well mixed together. Cuttings taken in April and March of the named sorts root freely in heat. When rooted, pot off singly into small pots, replacing them for a few days in a warm close house or frame with shade, until they take with the shift, when, if put into a frame where a temperature of from 45° to 50° can be maintained at night, they will do better than if allowed to remain in a higher temperature, where the plants would get larger in shorter time, but the growths would be weak; the blooms also would not be so fine nor last as long as those on plants grown with less heat. Never let the plants get pot-bound before being shifted into the pots in which they are to flower. Pinching will have to be attended to all along, to keep the plants compact and dwarf: by the beginning of May, if a cold frame can be devoted to them, where they can be kept near the glass, it suits them very well. By the end of the month the forwardest will be ready for their flowering-pots; after which, if the pots are plunged in the frame in coal-ashes, they would not be so apt to suffer from sudden changes in hot weather. There are various ways of training, and each has his particular system. We generally keep pinching the plants until a good foundation is formed; then put a small stick to each shoot, taking care not to have them too stiff and formal. When the roots get to the sides of the pots after the last shift, let

Digitized by Google

every second watering be of manure-water. Transfer them to the greenhouse as they begin to open their first blooms, and they will go on blooming for a long time. By sowing a pinch of seed in May, a good lot can be raised to succeed the early ones. If these seedlings get as much attention as herbaceous Calceolarias from the time the seeds are sown until in bloom, and a house filled with them as done with the Calceolaria, it will be found they are little inferior, if at all, in making a grand display.

AMARANTHUS SACILIFOLIUS.

This is a grand acquisition to the autumn decoration of the greenhouse, although we have not been able to get the plants to come well marked from the bottom. The top parts have been fine for centres of vases, covering the pot over with blue Lobelia: it looks well, the foliage falling over so gracefully. The side-shoots and even the main stem we have cut lately about 18 inches long, richly marked, to mix amongst the cut-flowers in large glasses, using them as centre pieces, and allowing the leaves to be free and falling loosely over and amongst the other flowers composing the groundwork. It is of easy growth in not too much heat, syringing daily, and fully exposing to the sun. We cannot speak of it out of doors, as we have not tried it yet; but we are inclined to think that rather free, open, rich soil will induce variegation more readily than heavy retentive mixtures, in which the plants are more liable to grow strong and rank. We have put in several finely-marked points as cuttings, but what will be the result we cannot say as yet. In saving seed, let it be taken only from the plant where it is well marked. This may also have a tendency to improve the variegation for another year. When placed out of doors it should have a good strong support to the main stem, and be tied regularly to it as it grows, more especially if placed in exposed situations.

RIVINAS.

All this genera of plants are most useful on account of their ornamental appearance when in fruit, the long shoots drooping with berries in all stages of growth and colour. Mixed amongst other things they have a very good effect, standing a long time in great beauty. When small and in the growing stages give a rather high temperature, with plenty of moisture in the atmosphere, with daily syringings overhead; let them also be shaded from the mid-day sun. Six-inch pots will be found a good useful size for the plant. If healthy, cuttings, taken early in spring and pushed along, will make nice plants in this size of pot, having several long shoots bearing berries drooping gracefully. When many of the berries are full grown and coloured, if removed to the warmest end of the conservatory they will stand for some time. They

Digitized by Google

are found useful for front lines or small baskets. Equal parts fibry loam and peat, with a little leaf-soil and silver-sand, make a good compost for them. Cuttings root readily in spring in leaf-soil and sand, under bell-glasses in bottom-heat. A. H. S.

JUDGING AT EXHIBITIONS.

We regret the soreness manifested by "Hortus" in consequence of the manner in which we challenged his general conclusion as to judges and judging, in so far as it appears to have led him erroneously to assume that we questioned his motives and his veracity. So little inclined were we to ascribe wrong motives to him, that in assuming that his paper was written under circumstances peculiarly irritating, we innocently thought we were putting the most charitable construction on it that it would bear. A man writhing under a sense of defeat, especially if he has got it into his head, rightly or wrongly, that he should have been victorious, may practically if not morally be excused if to some extent he temporarily forgets his manhood, and strikes out right and left among those who have been instrumental in bringing about his discomfiture. The circumstances of the moment somewhat extenuate his unreasonableness, and people are much more disposed to commiserate his temporary weakness than think harshly of his motives, which in such cases are, it is well known, not abiding, except in the most implacable of men. It was in this light and with such feelings that we regarded "Hortus's" strictures on judging and judges, and we thought his burlesque treatment of the authors of his grievances superior (inasmuch as it was novel, if not quite true to life as regards probability) to the average irate nonsense which sometimes at shows may be heard passing from the lips of the disappointed exhibitor. But this view of the case is not quite agreeable to "Hortus," and he has vouchsafed very properly to correct us, showing conclusively that we were altogether wrong in assuming that he made his onslaught on judges generally because he had suffered at the hands of some set in particular. We now hasten to make what reparation we can, apologising for our unwitting error, and congratulating him very cordially on the proud position to which, by the jaunty illumination afforded by those "crimson cards," we clearly perceive he is entitled.

"Hortus" complains of our sarcasm, but we fail to see the fairness of his complaint. Is it not accounted honourable to fight a man with the weapons of his own choosing? Why then should he who throws down the gauntlet and confesses that he has been whetting his whittle for more than twelve months, complain when it is taken up in the spirit in which it was thrown down? We have no grounds for a personal quarrel with "Hortus" that we are aware of; and if we had, we assure him that this would not be the mode we would choose for settling it. Our ground of difference with him rests not on the circumstance that he has directed attention to the evil, which we have admitted does exist, of appointing men as judges who are ill qualified for the work, but on the fact, as it appears to us, that he has exaggerated its extent. He distinctly asserts that "the vagaries of judges are, as might be expected, a prolific source of comment at every exhibition." That is a pretty bold and sweeping statement surely. We have heard, we confess, a good deal of comment on what "Hortus" probably means by the vagaries of judges; but even were we advocating his side of this question, we would have grave misgivings as to the advantage that would accrue

Digitized by Google

to our cause in bringing those most given to comment forward in support of it. Except in rare cases of glaringly bad judgment, we have not heard adverse comments uttered regarding the decisions by any but those who were directly interested in the results—the exhibitors or their friends; and as may fairly enough be said, their opinions are not the most reliable because biassed, and therefore cannot be accepted, however loudly they may be expressed, as conclusive proof that the judges have erred. Of the four instances which "Hortus" brings forward in support of the position which he has taken up, only one goes clearly to prove that ignorance was the cause of the miscarriage; we allude to the judging of White Grapes in the month of June. That was gross enough ignorance, we readily admit; but how often has "Hortus" seen that or anything like it perpetrated? The case of the Pines proves that looseness rather than ignorance, as it appears to us, had to do with the result. It strongly enough shows the necessity of insisting on the quality of ripeness in every case in which it may practically be insisted on; and the exceptions are so few that they are not worth taking into account in this discussion. The other two instances prove neither one thing nor the other in regard to the complaint of "Hortus," that judges are generally ignorant of their work. We do not call the facts in question as stated by "Hortus," but before we can accept the implied conclusion that "A." suffered injustice at the hands of the judges when he first encountered "B." and "C.," we have a right to know more of the circumstances of both competitions. We have seen many an exhibitor weaken his chances of gaining a prize for a collection of fruit, solely on account of his greedy endeavour to sweep off first honours in single dishes also. Trusting to the imposing effect of a good Pine or good Grapes in his collection, he draws off his best Peaches, Figs, &c., into the single classes; and then, in the majority of cases, this stamp of exhibitor grumbles at the ignorance of judges, who, while they fully appreciate the excellence of his single dishes, cannot perceive any merit in his collection beyond the Pine or the Grapes. We do not imply that this was the case in the instance in question, but there is something rather inexplicable in the circumstances as set forth by "Hortus." How could men capable of judging single dishes of fruit correctly, err so much as is implied in this case when they decided the merits of collections made up as stated of the kinds composing the various single classes? Surely the man who says he could "multiply instances *ad infinitum*" to show that exhibitors suffer so grievously by the ignorance of judges, might have adduced something more clearly to the purpose than "Hortus" has yet done.

The question of dissatisfied exhibitors is not a new one, but we think they have less to complain of as regards judges, and their decisions generally, than of the quality of the morals that prevail among many of themselves. We leave the subject in "Hortus's" hands, and being in no way anxious to have the last word with him, we shall not be induced to return to it by anything he may say in reply.

Hortus Secundus.

GOLDEN CHAMPION GRAPE.

This fine Grape has been pretty freely criticised since its distribution. Some have recorded their inability to entice the Vine to grow to any purpose; others, who have induced it to grow, have failed to fruit it; whilst those who have cajoled it into showing fruit have had their

Digitized by Google

hopes nipped in the bud: the berries would not set; even when it has set freely, disappointment has been the lot of others, in the shape of berries cracked and rotting, or rendered unsightly by spots. Surely such a catalogue of unnecessary accomplishments would act as a deterrent to any cautious planter of vineries. I have had the opportunity of watching its behaviour ever since it was first sent out, and from the experience thus gained the cultural treatment requisite to grow it well is somewhat as follows: To set the fruit, keep the atmosphere dry, and go over the bunches two times daily, removing any of the flower-caps, and shaking the bunches so as to distribute the pollen. Thinning the berries should be deferred till it can be seen which berries are the most likely to swell. Golden Champion begins to ripen earlier than most Grapes, Buckland Sweetwater and Black Hamburg included. It is absolutely necessary to leave off damping the paths, &c., directly it is noticed to be ripening, as moisture causes the berries to crack and subsequently rot. Of course, on hot sunny days, damping the house to counteract the too great power of the sun must be attended to, but otherwise no water should be thrown about, but a dry, airy, and warm temperature kept up. It takes longer to ripen than the two varieties just mentioned. Intending planters ought to take the advice of Mr Thomson and others, who say the Muscat of Alexandria is the best stock to grow it on. R. P. B.

FORCING HYBRID PERPETUAL ROSES.

As the time is at hand when those who have not yet a stock of these in pots in a fit state to be forced early, may very cheaply and successfully put themselves in possession of a stock that will flower satisfactorily in the very earliest months of next year, details as to when this may be managed may be of service to some. It is presumed that it is not even necessary to purchase plants that have already been established in pots for forcing purposes, and the following directions will be according to this presumption; and they will also be with the view of instructing, not those who grow and force Roses from a more rigidly florist's or competitor's point of view, but for the much more popular purpose of showing how a profusion of Roses can be had for cut-flowers, and for ordinary decorative purposes in conservatories, greenhouses, and rooms.

It is supposed that my readers may have a desire to have Roses in full bloom next March, and that plants in a fit state to force so early are not now in their possession. At a very reasonable outlay it is not too late to gain this object well. The first step in the process is to go at once to some Rose nursery and select the desired number of

Digitized by Google

the best plants in the nursery quarters of those that were budded in 1870 and 1871; get them marked, and leave them where they are till the middle of October. Make choice of those that have broken two or three buds, and that have six to eight good strong growths on Briar stocks about 6 inches high, or higher, according to taste and the purposes for which they are to be used. Generally speaking, these Roses begin to cast their bottom foliage about the time named, and have well developed their lower buds; and this is the proper time to lift, pot, and prepare them with the object of forcing them the same season. By the time named, a pit or frame should be got in readiness with a mild bottom-heat from leaves or tan. Then have the plants lifted with care, preserving as many as possible of the fibry roots, but cutting back those that are strong and bare of fibres. The size of pots used must be decided by the amount of root that each plant has; 7-, and, for the largest, 8-inch pots will be sufficiently large. Fibry rather strong loam and well-decayed cow-dung, in equal parts, with a sixth part of the whole of sand, is an excellent soil for them. Be sure to drain the pots well, and in potting to distribute the roots well amongst the soil, and to pot firmly. Leave the shoots and leaves that are in their tops intact for the present. Plunge them to the rim of the pot in the bottom-heat, and give them a good watering through a rose. For ten days or a fortnight keep them rather close, and dew them over with syringe morning and afternoon in fine days. As soon as they give indications of making fresh roots, draw the lights off them for an hour or two morning and evening, and give plenty of air throughout the day and night, the object being to get them to root afresh without making top growth. The natural action of the roots and leaves will be maintained by the bottom-heat and rather close moist atmosphere, and the pots will be tolerably well occupied with fresh roots by the end of November, and the wood and buds will be plump and firm as those that have not been disturbed at all, while the leaves will be all shed, except perhaps a few at tops of the shoots. When they are in this condition—and if the bottom-heat has not entirely declined in the bed—remove them to some cool sheltered place to be plunged in some open material, such as sawdust or ashes, free from worms, and where heavy rains can be kept from them.

Prune them back to two or three buds about the middle of December—generally this is close enough pruning for the first season. Place them at once in a cold frame or pit where they can be kept close, and free from any frosts that occur till the 1st of January, when they should be introduced to the forcing-house. A temperature of 50° at night, with, if convenient, a bottom-heat of 10° or 15° more, is heat sufficient to begin them with. Syringe them two or three times daily with

Digitized by Google

tepid water, and keep them near the glass, and exposed to as much light as possible. Increase the temperature 5° as soon as they have pushed young growths about an inch long, and give air freely on all favourable opportunities. Should the weather be cold, and smart firing necessary, keep them sufficiently far from the heating apparatus not to suffer from its parching effects, and keep the air moist; a dry parching atmosphere they dislike very much. Gradually increase the night temperature to 60° by the time the bloom-buds appear: 5° to 10° more when there is sun by day will not be too much. Whenever that enemy of Roses, greenfly, appears, fumigate at once with tobacco-smoke, and syringe the plants the following morning. Another enemy more treacherous than the fly is a small maggot that folds itself up in the tender foliage, which it disfigures, and from which it sallies and eats into the centre of the young bud, and destroys all prospect of a future Rose. The plants must be looked over regularly, and wherever a curl appears on a leaf, there is to be found the lurking destroyer carrying on his gluttonous repast.

As soon as the buds appear distinctly above the foliage, give air freely when weather permits, but always avoiding currents of cold air; and keep the buds within a foot or so of the glass, otherwise the flower-stalks will be drawn and weakly. As soon as the buds begin to expand and show the colour of the petals, remove the plants one by one as they get to this stage to a temperature of from 50° to 55°, where they can have plenty of room, light, and air. If allowed to open their buds in a high temperature and more moist air, the stems and leaves will not attain that degree of stiffness so desirable in a forced Rose, and in the cooler temperature the flowers expand with a truer colouring and a greater perfume. From this atmosphere they can, when ready, be removed to the conservatory or sitting-room, where the temperature is kept about 50°. It is not doing justice to Roses at so early a season to subject them to the killing atmosphere of an ordinary sitting-room, and they generally last longer when cut in a half-expanded condition, and put in glasses filled with soft water changed every day.

They are generally, when treated thus, in full bloom in about eleven weeks after being introduced into the forcing-house; but more established plants can be brought on more rapidly if necessary. Throughout every stage of their growth they must never be allowed to suffer from want of water.

When either the Roses have been all cut, or the blooming is past, and the plants require to be removed from the conservatory, place them in a light structure where they will have a temperature the same as they have had in the conservatory, where they must be cared for regularly

Digitized by Google

in the way of watering and airing, and not neglected, as is so often the case with flowering-shrubs, after they have served their purpose for the season. In about a fortnight they should be turned out of their pots and examined, with the view of shifting them into pots a size larger. The smaller plants that were in autumn potted into 6-inch pots will in most instances take an 8-inch pot, and those in 8-inch pots will require 10-inch pots. In shifting them, use the soil already recommended, with a few half-inch bones added to it. Remove every particle of soil about the bottoms and tops of the balls that has an inert appearance, and pot firmly. Place them in a temperature of 55° at night, with 10° more by day; and if they can be plunged in a gentle bottom-heat for ten days, all the better. Be careful not to over-water at the root for a time after the shift, but syringe freely twice a-day. Tie out the shoots to stakes, so that light and air can play freely about them, and keep them in this genial atmosphere till they have well taken with their shift; afterwards harden them off by degrees till they can be plunged in the open air after all danger from frost is passed. If space can be afforded them in a cold pit till after the middle of May, it will be safer and better, for if the foliage made under glass gets injured early it is much against them answering the purpose for which they are required.

When plunged out doors, place them in a sheltered situation where they can have the full sun. Do not crowd them, and see that they are so placed that worms cannot enter the pots, and so that water can escape freely from them.

When a succession of Roses is kept up from the beginning of January till they come into bloom out-doors, our practice has been to stand those that are done blooming about the middle of May, and after that time in a partially-shaded situation till after they have been repotted and taken with the shift, when they can be plunged with the general stock. Throughout the summer attend to them carefully with water, giving them occasional guano or other manure water. Keep them free from suckers, and remove all flower-buds from the young growths—the object being to get firm strong growths with well-developed buds. About the early part of November, when they have nearly shed all their foliage—especially those that were earliest forced and shifted—those intended to be forced first should be pruned at once. Select those for the first batch that are the earliest and best ripened, and have the most prominent buds. In pruning them remove entirely any weakly growths that are in the centres of the plants, and cut the others back to two and three eyes, according to their strength. Lift them from the plunging material, and turn each plant carefully out of its pot, and see that the drainage is in proper condition. Remove all the loose top

Digitized by Google

soil down to the roots and replace it with fresh compost; and in order to destroy any worms that may chance to be lurking in the soil, water them well with lime-water. These, if intended to be put into heat in December, should be put under glass in a cold pit, greenhouse, or vinery, at once, where they can have plenty light and air, and where the temperature does not fall under 40°. By the first of December they may be put into the forcing-house and treated as directed for them the previous season.

According to the stock and quantity of plants required in bloom at any given time, continue to prune and put into heat that number at intervals of fourteen days all through the winter and early spring, selecting them in the same rotation as they were forced the previous year. It is best, after there is the chance of severe frost, to place the whole stock in cold pits, or any open, airy, light place where hard frosts can be excluded. We have seen plants very severely crippled with frosts when pruned and left standing out doors in severe weather, and it is best not to run such a risk.

After the second year's forcing it frequently happens that those forced in 8- and 10-inch pots require no further attention at the root the second season than just to see that the drainage is in good order, and to top-dress with rich compost,—of course this depends entirely on circumstances. They should all be very carefully examined, and if the great bulk of the roots have made their way down into the drainage, they should then be partially shaken out, the strong tap-roots pruned back, and in repotting them, place as much soil below the balls as possible. The rule that most generally applies is to shake them out every second year, and root-prune and pot as I have been directing. This treatment, whether it be considered desirable to go beyond a 10- or 11-inch pot ultimately, is necessary in order to keep the plants well furnished with active twiggy roots, and supplied with fresh soil, and so keeping the plants for years in a healthy and satisfactory state for forcing.

The great bulk of the Hybrid Perpetuals force well, and for early spring decoration they may be pronounced indispensable, and certainly the most pleasing flowers that can be grown. The old Cabbage-Rose, treated according to the foregoing directions, forces well, and is singularly beautiful and sweet in a forced condition. I have known this old favourite forced (the same plants) for nearly twenty years, and remain healthy and vigorous to the end.

Digitized by Google

LATE SPRING FROSTS.

The severe and long-continued frosts of last spring will not readily be forgotten by either gardeners, foresters, or farmers. The long-continued rains kept the surface of the earth wet, the absence of sun prevented evaporation, and all things seemed to combine in producing the particular state of atmosphere best suited for the success of chilling agents. In looking at the effects of these frosts, we were led to the following conclusions. The same amount of cold does not always produce the same injurious effects. The same effects are not always produced at the same altitude; and intervening objects, such as walls, trees, or buildings, tend much to mitigate the effects of frost. It is a well-known fact that frost does not act on a dry surface, while, when the surface is wet or trees have had a sprinkling of rain over-night, we know too well the result. Altitude does not always produce the same effect; we have but to notice how the cold frosty fog settles down at night in low-lying spots, whether the vale by the brook or the hollow on the hill-side—notwithstanding the hollow is at a considerable elevation. In these hollows the surface is damp and the air still. We had a forcible example on some young plantations of the effects of late frost this last summer. By the brook in the vale we were not surprised to see some mischief done. On the rising-ground a few feet higher we found no harm; but 300 or 400 yards further up, the general surface continuing to rise gently, in what is no more than a slight depression of the surface, but sufficient, we presume, to retain damp, there the young trees, about a yard high, had their young growths quite destroyed, even more so than in the bottom of the vale. As to ameliorating causes, we know that in market-grounds where hardy fruits are grown the ground is generally planted with bush-fruits, while a moderate proportion of standards rear their heads over them. The primary object is no doubt economy of space, but we are persuaded a great amount of protection is afforded in spring to the Currants and Gooseberries, for these coming into leaf and flowering early are much benefited and little injured by the trees over, which come into leaf much later. In a kitchen-garden near to where the writer now sits, there is strong proof of the good derived from surrounding trees, *not too close*, as well as from those scattered over its surface. Strawberries, Currants, Gooseberries, &c., have been plentiful. Apricots of course suffered from the earlier frosts, but Peaches, Figs, Green-Gages, &c., have given fair crops of fine fruit though left entirely without protection. This is attributable, we think, to the surrounding and intervening trees. S. X.

A WORD ABOUT LILIES.

Various statements having lately appeared in the Gardening periodicals as to the size and hardiness of certain sorts, we would beg to state what is our practice. For a good many years we have treated the Lancefolium varieties, and also Auratum, as perfectly hardy, and are fully satisfied with the result. True, we have never attained the gigantic height of 11 feet mentioned by one writer, neither do we think it desirable. Auratum runs up about 5 feet, producing from 25 to 30 blooms to a stem; the Lancefoliums not quite so tall. They grow in a border in front of some laurels—the only preparation being a little peat worked into the old border. They are in bunches of about 6 bulbs; their only protection is a shovelful or two of ashes thrown over each patch in autumn before frost. Unless for increasing the stock, we find the less they are disturbed the stronger they grow. S. X.

Digitized by Google

GARDENERS AND GARDENERS' WAGES.

UNDER-GARDENERS and garden-labourers have benefited by the general agitation for more wages in all departments of labour, but to a less extent than almost any other class. Why is this? Simply because they are not in a position to command a better price for their labour. It is no doubt true that both head and undergardeners are underpaid—much underpaid—considering their responsibilities. I am speaking of men worthy of the name of gardeners, and not of that numerous class of empirics who swell the lists, and keep down prices by their competition with skilled men, who are really scarce. But the impression exists among employers that gardeners can be had any day, and at almost any price; and although an employer will generally make some small sacrifice to retain the services of a man whose worth he knows, still he thinks, if the worst comes to the worst, that he can get another man: and this fact makes the master independent, and the servant cautious and moderate in his demands. It is gratifying to read of those employers who have this season responded liberally to the respectful demands of their head-gardeners; but we believe such instances are exceptional, and that head-gardeners generally have only participated to a very small extent in the general advance of wages. We have very little faith, indeed, in any movement which appeals to the *graciousness* only of employers, and there is little prospect of a better state of things while the gardener cannot fetch his value in the market, like any other tradesman. "God helps those who help themselves;" and unless we can take charge of ourselves and our prospects, and do something to mend matters, we have little to expect from others. Few trades or professions have written and talked more about their grievances than gardeners, and few or none have really done less, practically, to obtain redress; and it is high time we took steps to do so now. Gardens are manufactories of fruits and flowers nowadays, and are daily becoming more a necessity than a luxury among the wealthy classes, who, when they find they *must* pay a higher price for the article, will do so, there is little doubt. This season's experience has shown what course must be followed to better things. Good workmen were never so scarce, and wages have gone up generally. For this they have, we believe, to thank themselves and the master-gardeners solely. The latter have felt a difficulty in getting men, which has led them to make energetic representations to their employers, which, as a rule, have been responded to. The question now is, What practical measures can be adopted to reduce the supply still further, to secure a better class of men, and to shut out pretenders? Could these ends be secured, there can be no doubt the results would be beneficial in a high degree, both to horticulture and to gardeners—head and under. But such ends can only be accomplished by co-operation, among head-gardeners particularly—they can rule the roast, if they choose. Unions need not take at all an offensive shape towards employers. Master-gardeners, as a rule, have the entire control of the garden staff. They can please themselves, generally, whether they employ gardeners or garden-labourers, and whether they will employ one apprentice or six. All they are called upon to do, therefore, is to reduce the number of journeymen and apprentices, and employ more labourers, and not to recommend workmen nor employ any who are not fair scholars, and who have not served a regular apprenticeship to the business. This is the only way to drive pretenders from the field. It would do it effectually; and employers would benefit by such means as much as any one else. It is more satisfactory in every

Digitized by Google

way to employ a permanent staff of labourers for the general work, than a lot of young men who are continually going and coming. We find this to be the case with ourselves at least, and every one we have spoken to on the subject. If you go into a nursery nowadays to inquire for men (gardeners), the chances are that you will not find one who has learned his business in a regular way. If you inquire particularly into his antecedents, you will probably discover that his horticultural experience does not extend over a longer period than eighteen months or two years, and that during the greater part of that time he has been "a-doing odd jobs about the house"—*i.e.*, groom of the chambers and stables generally; but having, perhaps, filled up the small hours of his afternoons in the garden. He in kind imagines himself a gardener, if he does not turn out to be a groom; and getting into a nursery, he finds himself, by no particular choice or purpose of his own, in the ranks of the fraternity, without, in all likelihood, the ability to spell his name correctly, or to handle his tools with any proficiency, and knowing just about as little concerning the history of his profession or the duties of a gardener as the commonest labourer, and decidedly inferior as a workman. These are the kind of men who are to be found in abundance in England, and to a less extent in Scotland, and whom we must combine to shut out of the ranks. Co-operation among the master-gardeners, to begin with, would very soon cause a stampede, and before long an improvement in the position of gardeners throughout the country. All we want is organisation and unity, and this among gardeners nowadays would be easy. Any measure which has for its object the general welfare of horticulture cannot but meet with the approval of all who are in any way interested, be they employers or employed; and that the plan which we have here but roughly sketched would contribute towards that end, we have no doubt. We hope the matter will be well and sensibly discussed in the 'Gardener,' and that, before long, some action will be taken in the matter to promote such a movement as we have proposed.

A Head-Gardener.

PROPAGATION OF THE CAMELLIA.

All the varieties of the Camellia may be propagated by cuttings off the preceding summer's shoots, put in either in early spring before the plants start into growth, or in summer or autumn when the growths are thoroughly ripened.

The most successful plan is to strike them in pans or pots, drained with at least 2 inches of crocks covered with ½ an inch of turfy loam or peat; then filled to within 2 inches of the brim with a compost of sharp sand, peat, and loam, in equal proportions, well mixed, and only used when perfectly dry. This being well firmed and levelled, the pot is then filled with clean sharp sand, and the cuttings inserted with a flat dibble, so that the sand may be properly firmed under and around them.

If the operation is performed late in autumn—which season we believe to be the best for the purpose—the cuttings should have no more heat than that afforded by an ordinary greenhouse till about the middle of February, when they should be placed in a higher temperature, and,

Digitized by Google

if possible, plunged in a mild bottom-heat, when they will soon begin to form roots and push up young growths. When well rooted, the young plants should be potted off into 3-inch pots, with plenty of drainage, using the same compost as before, and kept in heat till they are thoroughly established, when they may be gradually hardened off and treated in the same way as the other Camellias. During the whole process of striking, care must be taken in watering, so that the cuttings may never become either too dry or too wet; and at no stage must they be exposed to the direct rays of the sun.

It is unnecessary to lay down any particular rule as to the selection and making of the cuttings: for ourselves, we always make them the full length of the shoot if it does not exceed 9 inches, in which case we endeavour to secure a heel or joint of the older wood; but when it is, as is often the case, inconveniently long, it may be cut immediately under a joint in the usual way, choosing the top as the most likely to strike, and only removing as many leaves as will allow it to be inserted in the sand about 3 inches.

While all Camellias, however, are thus easily propagated by cuttings, and become for the most part robust handsome plants, it is found that they grow too freely on their own roots to be either precocious or free bloomers; they are therefore almost always grafted, the stocks used being the single red, or any other sort that can be got conveniently either from seed or cuttings in the way we have indicated, the stocks being ready for use when their stems are about the thickness of a lead pencil. The proper time for this operation is in spring, just before the plants begin to grow; and it is performed by skilful hands successfully by all the various methods, though most commonly—particularly when the scions are scarce and a large quantity is required—by that known as side-grafting, in which a small part of the shoot—often not more than a single eye, with as much stem as will form a graft—is sufficient for the purpose, both stock and graft being cut in a similar manner to that in grafting fruit-trees, but with this difference, that the top of the stock is left on; and as they are not, as in outdoor grafting, exposed to wind and weather, tonguing is unnecessary. The grafted plants require to be kept in close hand-glasses or frames in a warm house till such time as they give evidence by their pushing into growth that the union has been effected, after which the covers are gradually raised and air admitted; and they are ultimately removed to a close but cooler house to be completely hardened off.

By far the simplest as well as surest plan for an amateur, however, and the one we would advise our correspondent to adopt, is that kind of grafting called inarching, in which the scion is united to the side of the stock before being separated from its parent plant; the

Digitized by Google

whole process being the mere cutting off a thin slice of bark and wood from each, fitting them accurately together at the cut parts, and binding them sufficiently tight to keep them in close contact till the union is completed, when the ligature may be removed and the top of the stock and the base of the scion cut clean off at the junction. This, though best done in spring, may be done at any season of the year, and requires neither extra heat nor shading.

We only add, that whatever mode of grafting is adopted, much depends for success upon its being neatly performed: the one cut should always fit with the utmost accuracy to the other, so that the barks may unite with facility. H. Fraser.

BATTERSEA PARK.

Battersea Park has now been for some years famous for the highly artistic and perfect manner in which the bedding-out has been done. It was here where what is called sub-tropical gardening was first carried out, and under the care of Mr Gibson was brought to a state of perfection hardly to be looked for in this fickle clime of ours. We do not think that, under the present superintendent, it is likely to lose prestige in this department of decorative gardening, the plants this season being all that could be desired, both as regards arrangement and health of the individual plants.

As we jotted down a few notes of the arrangement of the general stock of ordinary bedding-plants, as well as of the sub-tropical plants, we will try and write them down in a more connected form, for the benefit of those of our readers who have not had the privilege of seeing for themselves. We must say, however, that it is totally impossible from mere words to form a correct idea of the beauty and perfection of arrangement displayed. It would require to be seen to be appreciated.

On entering the park from the Battersea side, after proceeding a short way along the drive, we come to a group of beds on the right hand, consisting of seven long narrow beds radiating from a circular bed, and gradually getting a little wider towards the extremities, which are rounded off. The whole group forms the half of a circle. The first pair of beds run parallel to the drive, and are on the level, as also is the circular bed. Each succeeding pair is raised above the level, getting higher towards the extreme end, so that the whole group presents an inclined plane to the spectator, and is thus seen to advantage.

The whole group is edged with variegated Euonymus, clipped like Box. The circular bed is planted with a mixture of things,—such as Geraniums, scarlet and variegated, sweet-scented and gold; Heliotrope, Cineraria, and Alyssum,—and edged with Sempervivums. Centre long bed, a line up the middle of Cineraria, then a band of Christine Geranium, and golden Geranium Crystal Palace Gem next the permanent edging. Next pair of beds are planted with Coleus Verschaffeltii, and edged with Centaurea ragusina; a band of same being carried across the beds at intervals, like steps of a ladder. These two beds looked as if they had been turned out of a mould, so perfect were they. Next two beds were of golden Geranium, edged with Lobelia. Last pair of beds, those next the drive, are exceedingly pretty. Diamonds of Alternanthera up the centre of

Digitized by Google

the beds, each two nearly joining at the points, six being in each bed. These have an edging of Sedum glaucum, a line each of Alternanthera and Sedum being also carried round the outer margin of the beds. The remaining spaces up each side of the bed, which are half diamond-shaped, are filled with Mesembryanthemum cordifolium variegatum. This whole group was absolutely perfect. A shrubbery ran along the back, with a border in front of the shrubs planted with mixed flowering-plants, amongst which Balsams were largely used, and doing well. Single specimens of Palms, Yuccas, &c., were planted on the grass round about. Two large beds of Cannas, one edged with a large ornamental Beet and the other with scarlet Geranium, looked very fine, as did also a fine bed of Azaleas and Wigandias, edged with Tagetes and Lobelia, next grass.

Proceeding onwards, we come to a long square-shaped bed planted thus:—Two rows of Echeveria secunda glauca are round the outer margin of the bed, and then a line of Alternanthera amœna. Two longish panels, one on each side of centre, are planted with Alternanthera magnifica, and the remainder of the bed is filled up with Mesembryanthemum cordifolium variegatum. An exceedingly effective bed, and very perfect.

A very masterpiece of this style of bedding sweeps round by the back of the refreshment-house, forming a half-circle, and divided in two equal halves by a walk bisecting it. A wide belt of grass, on which are some beds, is next the walk, and behind the grass a wide border, backed up with shrubbery. On the grass there are four of the beds, each composed of three circular beds, joined together by an oblique stripe running from the inside of one circle to the outside of the next one. They all are edged with variegated Thyme. The circles are planted with Viola cornuta, Geraniums Mrs Pollock and Flower of Spring mixed together, and the connecting bands with Lobelia. The centre bed on each side is raised above the level of the grass, and is also planted with mixed things—such as Cineraria, Centaurea, Heliotrope, Abutilon Thomsonii, Geraniums of sorts, Alyssum, Lobelia, &c.; while Palms, Azaleas, Dracænas, Echeverias, Cordylines, &c., were plunged in pots on the grass at intervals. The arrangement of the border at back is simply superb. An edging of variegated Thyme is next the grass; then a series of panels in the form of a Gothic arch, the base resting on the Thyme, is continued all the way round, planted with Alternanthera. Then two rows, about 6 inches apart, of Echeveria glauca, follow the shape of the arches. The space between the two rows of Echeveria is planted with a little variegated Sedum. Then there is a series of diamond-shaped panels up the centre of the border, two corners being rounded off on each; and of the other two, one points to the back of the border, and the other points between each two of the arches named above. The diamonds are planted with Golden Feather Pyrethrum; while again, in the centre of each diamond, is an oblong panel, rounded at the ends and contracted in the middle, planted with Coleus verschaffeltii, alternated, at intervals of four, with four of Lobelia. A line of Geranium Bijou runs along the back of these panels, and behind it a line of Christine; again a line of Crystal Palace Scarlet, and another of Calceolaria amplexicaulis. In this large piece of ground it did not seem as if a leaf was out of place, nor one wanting, so perfect was it.

In the sub-tropical portion one would delight to linger, and almost fancy one's self in an Eastern country, so beautiful and healthy everything looks, and such a variety of scenery as well as of plants. Here are found huge masses of Cannas 10 or 12 feet in height, large Bananas, Azaleas, Palms, Wigandias, Maize variegated and green, Pomegranates, Grevilleas, Acacias, variegated

Digitized by Google

Vines, India-rubber plants, &c. &c. There are also a lot of Monstera delicosa, looking quite as well as when in the stoves. A large bed, or rather clump, was filled with large plants of Amaranthus salicifolius, Love-lies-bleeding, Coleus of sorts, and edged with Amaranthus melancholicus ruber, and outside of it again a line of Centaurea ragusina. Another bed was filled with a green Canna, mixed with variegated Maize, and edged with Abutilon Thomsonii, with again a line of Flower of Spring, and an outer edging of Fuschia Meteor. A large circular bed is planted with a dark-leaved Canna and variegated Maize, mixed, and edged with a dwarf green Canna and a dwarf Azalea, the whole forming a pyramid, and looking very pretty.

Another very beautiful round bed had a centre of Coleus Verschaffeltii about 5 feet across, a line round it of Centaurea, then a band about 2 feet wide of Alternanthera amabilis latifolia; again about the same width of Pyrethrum Golden Feather, with six panels in it of Alternanthera amœna, and the bed edged with Echeveria pumila. Another charming bed is one about 40 feet long and 8 wide, planted as follows: The bed is edged with Echeveria secunda glauca, then a row of Sedum glaucum, and another row of Alternanthera amœna. A Pear-shaped panel at each end, the point pointing towards the centre, is planted with Mesembryanthemum auranticum, and plants of Dracæna Rumphii and Achyroclina Saundersonii dotted amongst it. A diamond-shaped panel in the centre is planted with small plants of Cordyline Australis, Achyroclina Saundersonii, and carpeted with Mesembryanthemum auranticum, and edged with Alternanthera. A panel on each side of this one is formed like two hearts joined to a diamond in centre, the points of the hearts being joined to the diamond, and are planted with Artemesia frigida, with plants of Tradescantia discolor dotted amongst it, and edged with Achyroclina Saundersonii and a row of Alternanthera. The remainder of the bed is filled up with Golden Feather Pyrethrum. The bed looked like a piece of Mosaic or painting, so perfect in all its details.

A large oval bed is edged with Echeveria secunda glauca, then a line of Alternanthera magnifica, and a line of Lonicera aurea reticulata, trimmed into shape, the body of the bed being planted with variegated Vine, and tall plants of Grevillea robusta, and Acacia armata planted thinly amongst it: very pretty and effective. Another long bed is filled with Nierembergia gracilis, edged with Sempervivum montanum and Sedum glaucum. In the centre a circular panel of Coleus Verschaffeltii. At each end is a panel, also round, planted with Alternanthera amabilis latifolia; and in the spaces between come in square panels, one filled with tricolor Geranium Louisa Smith, and the other with Lady Cullam, planted thinly, and the ground covered with Sedum glaucum.

A very beautiful circular bed is planted thus: A circle about 4 feet wide, in centre planted with Centaurea, then two rows of Iresine Lindenii, two rows of golden Geranium, other two rows of I. Lindenii, then a belt of Mesembryanthemum cordifolium, next a belt of Alternanthera, a second belt of M. cordifolium, and edged with Sempervivum tabuliforme. The edge of the bed is raised about 6 inches above the level with a composition of clay and cow-dung, and the Sempervivum planted at once; it retains its shape throughout the season: the Sempervivum thus seems to be resting on its edge, and is seen to better advantage.

We admired a large bed very much which was planted with large plants of Fuchsia Vénus de Medici, dotted thinly in the bed, it being filled up with Amaranthus salicifolius, Coleus in variety, Amaranthus melancholicus ruber, Iresine Lindenii, dwarf Fuchsias, &c., and edged with Fuchsia Meteor and

Digitized by Google

Echeveria ovata. Another mixed bed had the ground-work of Coleus Verschaffeltii, a large Cordyline indivisa in the centre, and plants of Chœmerops Fortunii, Erythrina laurifolia, in full flower, dwarf Azaleas, &c., dotted amongst the Coleus, and edged with Fuchsia Meteor and Mesembryanthemum cordifolium. There are many other equally fine beds to those enumerated, the details of planting being somewhat different, but the materials similar.

We observed several masses of Sanseviera javanica (Sword-plant), which had a somewhat novel appearance on the grass, while large specimen Palms in variety, Bananas, Cordylines, and variegated New Zealand Flax, were planted out in great numbers on the grass.

In a nice-shaded and well-sheltered place are plunged on banks and glens large numbers of tree-Ferns, some with stems varying from 5 to 10 feet in height. Neottopteris nidus (Bird's-nest Fern) was planted out by the score; also large plants of Dracæna umbraculifera, D. fragrans, Alsophila Australis, Anthurium Acokerii, masses of Stag-horn Fern, Lomaria gibba, Marantas in variety, and Monstera delicosa, all seeming to enjoy their quarters amazingly. A huge plant of Cycas revoluta is planted on a mound, the ground being covered with Geraniums, edged with Alternanthera. On a corresponding mound, but behind, is a very large plant of Banana (Musa Ensete) about 12 feet high. Palms were dotted here and there round about them, while three parts round the whole was a bank of Cannas and Ficus elastica, edged with Funkias in variety, while shrubs and trees made up the background. Everything seemed to be revelling in health. There are several places devoted to flowering-plants, such as are usually met with in gardens, such as Geraniums in variety, Verbenas, Gazania, &c. &c. These, however, we need not describe, though, as a matter of course, when everything is done so well, these also receive their due share of attention. We were particularly struck with the beauty of Amaranthus salicifolius; this will be a splendid subject for the flower-garden. We think it should be grown into pretty large plants before planting it out. We have not seen it anywhere so finely coloured as it is at Messrs Veitch's establishment at Chelsea, where it is planted out in quantity, and draws universal admiration.

It seemed that in Battersea Park there was a place adapted for everything, and that everything was in its place. Great praise is due to the managers for having afforded the inhabitants of London such a treat as they may find here, and which indeed seems to be duly appreciated and taken advantage of.

J. G.

VERBENA VENOSA AND DACTYLIS GLOMERATA.

One of the most effective beds I have seen this season is the variegated Cock's-foot and Verbena venosa, plant for plant. The deluges of rain we have had, instead of spoiling them, like most other bedding-plants, appear to improve them. They are eminently suitable for amateurs or others having limited accommodation, being easy to propagate, and as easily kept over the winter. The Dactylis being a tufted-growing grass, the best way to propagate it is by division. If that is done now, and planted in any out-of-the-way corner, they will make fine plants for next season. Any one not having the Verbena can soon raise a stock of it by getting a packet of seed and sowing in heat in March. They

Digitized by Google

will bloom the same season, but later than if from cuttings or divisions of the old roots. To keep them through the winter, they should be put in a cold frame or cool greenhouse. In March, or early in April, put in cuttings of the young shoots, or cut the creeping roots in pieces with one or two eyes to each, and place them in heat, when they will soon make nice plants. A. B.

Kelso.

[V. venosa is one of the grandest bedding-plants there is, doing well in all sorts of seasons.—Ed.]

THE GLADIOLUS AT THE R.H.S. & CRYSTAL PALACE SHOWS.—August 21 and 28, 29.

The Gladiolus has rapidly and most deservedly come to the front as one of the finest autumn flowers we now have. That it is but lately it has been recognised as such, may be easily gathered from the comments and questions of visitors to the shows, many of whom are totally unacquainted with it; some gravely asking if a hothouse is not required to grow them, and wondering greatly, when told to the contrary, that such beautiful children of Flora should expand and display their charms under the auspices of the fickle-tempered weather of our "sea-girt isle." However, before long, and more especially so if the vast number of provincial societies encourage florists to devote part of their attention to the Gladiolus, we may hope to see it as well known as the Dahlia or stately Hollyhock.

As exhibited this year, the Gladiolus seems to have done well, the varieties shown being generally select and fine. A very noticeable feature was the large number of English seedlings shown, two of the exhibitors having their stands filled, for the most part, with seedlings of their own raising. Those intending to commence the cultivation of this flower must be totally bewildered, on consulting a catalogue, to get at the sorts most worth cultivating; probably in the end selecting a lot of mere rubbish. Thinking thus, I noted the best sorts shown at the two above shows, and trust they may prove of some value to some of your flower-loving readers.

The only good yellow flower shown was a seedling named Hemon, not so good as Yellow King, a flower shown last year by the same firm (Messrs Kelway & Son, Langport). The latter is the best of the colour I have seen. Of Whites, Madames Desportes, Norma, and Beatrice, nearly selfs, are all fine, the first being probably the finest flower in cultivation at present. Princess Mary of Cambridge and Shakespeare, 1866 varieties, both first-rate blotched flowers. Heloris and Osci are fine seedlings. Among Reds and Crimsons of various shades some fine seedlings were exhibited, notably Herdonia, Otus, Lycoris, Lamirus, and Day-Dream. Established varieties are Michael Ange, Meyerbeer, very fine, but generally poorly represented. Horace Vernet, Monsieur Legoune, and Virgile; Osci and Geraldine Morgan, both rosy-purple seedlings, are both magnificent—*très-superbe*, a Frenchman would say. In shades of rose and pink, Rosea perfecta is very fine; Lacepède, one of the very best; Eugene Scribe, pretty, poorly shown; Adolphe Brogniart, rose-tinted orange, red-flamed, with white spots. Madame Furtado, an old but altogether splendid variety. Orphée, light, very fine; Celimene, Virginalis, and Antigone are varieties of the present year; the last-named fine, the others "so-so." Sir John Franklin fine, spike rather open. Junea and Vacuna are pretty novel coloured seedlings. Delicata

Digitized by Google

and Carminata are also seedlings, but with names already appropriated. Delicatissima, one of the finest flowers of '69, seems to have retrograded, as I have not seen it near so fine since its first appearance. A. F. Barron, though small in the individual flowers, struck me as the most distinct and well-formed seedling shown; the ground-colour is a carmine, distinctly edged with a narrow line of rosy pink, and is most chaste in appearance. It is from the seed-bed of Mr Douglas, Loxford Hall. Phidias may prove worth growing; the colour is distinct.

If M. Souchet wishes to maintain the name he has gained for new Gladioli, he must send out something better than the batches distributed these two last seasons. English seedlings, if they can be increased in sufficient quantity in a short time, which is exceedingly doubtful, will certainly take a place in advance of the French sorts, at least in a good many cases. The greater number of the flowers on which first-class certificates were conferred deserved the distinction, though in some cases I was entirely puzzled to understand why some of them were so honoured. This was the case both at South Kensington and the Crystal Palace. If certificates are intended to convey the impression that the subjects on which they have been conferred are better than others already in cultivation, they ought to be more cautiously given than in the present instances. I would recommend the intending cultivators to procure rather a number of the bulbs of varieties here named than to buy a collection many of which are comparatively worthless. R. P. Brotherston.

HORTICULTURAL EXHIBITIONS.

(*Continued from page* 374.)

Circumstances over which I had little control prevented my returning to this subject in the current number of the 'Gardener;' and I must confess that I am not now sorry for it, inasmuch as it has given me an opportunity of addressing a few words to your able correspondent, Mr Temple, who by the aid, apparently, of a second-sight and his own peculiar logic, has been enabled to take up and argue the three divisions of my subject which were reserved for a future time. Seeing that he has accomplished such a difficult task, I would not be the least surprised to find him, in some future number, taking up some subject and arguing against my views of it even before I had thought of it myself.

I will now say a few words regarding the two divisions of my subject which I handled in the August number, and to which Mr Temple replied—along with his other arguments—in the current number of the 'Gardener.' Regarding the first argument, Mr Temple asks "if Mr M'Millan here excludes himself, as he sometimes exhibits?" &c. In reply, I say certainly Yes; nor yet did I include Mr Temple himself, nor many more whom I know to be men of too much sterling worth and genuine integrity, although I know men who hold positions of greater prominence than either his or mine to whom the remarks apply. If Mr Temple will again read the second paragraph of my article, he will see that I did not direct my remarks against all and sundry, but only against the guilty, and from whom *only* I expected replies. Mr Temple errs in saying I am sometimes an exhibitor, as it is more than three years since I exhibited, and would still have been one had it been congenial to the tastes of my employer. The last time I did compete, the West of Scotland and the Caledonian Horticultural Societies held both their shows in one day—the one in Glasgow, the other in Edinburgh. For both shows I had ten entries, and was ten times placed the

Digitized by Google

positions of first, second, and third, being pretty equally divided. For Grapes, Hamburg, I was second in both cities against collectively about twenty competitors. Now no one can *insinuate* that I gave up competition, or that I wrote the article, because I had not been successful; far from it; for I believe, during the time I did compete, I obtained far more than a share of success. Mr Temple says, "The charge of dishonesty . . . must apply to very few cases." Well, suppose it does—which I much doubt—does Mr Temple not think that even one case does a deal of harm? Certainly it does; and one such case may do more harm to one society than all the good accomplished by the other legitimate competitors. Let us take a case in point. Several years ago, a well-known and very successful competitor in the plant department, at one of our largest shows, was blamed—whether rightly or wrongly I say not—but was blamed for receiving plants direct from London, which never were unpacked until they were placed upon the competition-tables. By the aid of these plants *only* he was enabled to get the first prize, thereby taking the position from other exhibitors who had grown the plants shown by them for years in most cases. That one exhibitor, I venture to say, did more injury to the true cause of horticulture than the society has done of good for years. On account of it, some of the oldest and best competitors withdrew from the field; and those who know the society to which I refer, can testify that the exhibition of plants has never been so good since that time. I only give this one case; I could adduce many more. Regarding the second division to which Mr Temple refers—viz., that "it cannot often happen that judges are appointed from men who know nothing"—this word should be little—"of the duties they are expected to perform." I would say that it never should occur, as plenty of good and able men are to be obtained. But that it does occur, and that more frequently than some would suppose, is nevertheless a fact, for the proof of which I would refer the reader to some of the recent numbers of the 'Gardeners' Chronicle,' and also to some articles which have recently appeared in your own excellent magazine.

I now leave Mr Temple and revert to where I left my subject in the August number, feeling that it is not my duty to follow him through the arguments he adduced against me before he had heard what I had to say thereupon. I said a third reason why horticultural exhibitions did not accomplish what they were intended for was, because, in many cases, awards are given through favouritism to articles of inferior value; while in other cases, awards have been withheld where the articles were really of a more meritorious nature: this more particularly applies to articles staged for exhibition than for competition. Now, is it possible that any one can deny this? I will give a personal illustration of it from my own experience. Some six years ago I sent in for exhibition at the Glasgow show, the last week in March, a dish of ripe Cherries gathered from a heated wall, protected only by an old herring-net. The fruit was large, fine, and well coloured, and yet, although this was the only time Cherries ever were shown in Glasgow under any conditions so early, neither the judges, the committee, nor any one concerned, took any notice of them. The same thing occurred with forced Strawberries. For two years I showed a dish in March, and no notice was taken of them. This was the first time they had been shown in Glasgow so early. The next year I sent none, but another gardener sent a dish, which was awarded a certificate and either 10s. or £1 of money. Now I have no fear of being contradicted when I say the fruit shown by me on the two former years was at least equal in quality to that exhibited by my friend. Now, if this is not favouritism, pray what is it? Why make fish of one and flesh of another? If the fruit deserved a certificate in the one case, it did so in

Digitized by Google

the other. The case is answered in this way: at that time I was a perfect stranger in the locality; no one cared either for me or my productions; whereas the other gentleman was on the most intimate terms with all concerned. Now this ought not to be; everything should be dealt with upon its merits, and on that alone stand or fall, no matter whether the exhibitor be known or not. I give this as an illustration of what takes place at almost every show in the kingdom. No doubt, had I hunted up the judges and pressed them for an opinion—as many do in such cases—I would probably have obtained the object of my ambition, but would it have been a gratifying way of doing so? Certainly not; the certificate would not have been for Cherry-culture, but for importuning the judges.

My fourth argument was, that horticultural exhibitions did not accomplish what they were intended for, through the want of a set of rules to guide the judges in arriving at a proper decision. Now I doubt not but this is one of the points of greatest importance, and demanding at once the attention of all in connection with flower-shows. How often do we hear men—yea, and men of good standing and known ability—differ about the awarding of such a prize as, say, "Twelve best Stove and Greenhouse Plants," because they place a different construction upon the wording of the prize-list? One man says, I understand the "best" to mean the best-flowered and most taking lot, as a whole, to the eye. Another man says, Nay, I cannot admit that. Here is a Tree-Fern worth £20, while the whole of your lot is not worth much more. Judge No. 3 says, I differ from you both, inasmuch as my opinion is based upon the fact that the plants in the collection I like best require a greater amount of labour and cultural skill to produce them in the condition you see them, than either of the other lots do. Here is an Ixora, a picture of health, with dozens of trusses of bloom; there is a Croton, in as good condition as one could wish, not a large plant, but so far as culture is concerned it is A 1. Thus he argues from point to point, and from plant to plant, until he either persuades his brother judges that he is right, or they convince him that he is wrong. Now one simple rule would be sufficient to enable all the judges to look at the competition from one standpoint. Let it be something like the following:—In all competitions for collections of plants, let the word "best," or "more meritorious," be understood to mean the collection which shows the greatest amount of labour and cultural skill, irrespective of the intrinsic or market value of the plants exhibited. If a rule something like this were adopted, not only would it be a good guide to the judges, but the competitors themselves would know what is wanted. It is no uncommon thing to hear a man say, If I knew who were to be judges, I would know what to take. Mr A. likes a big thing; but if it is to be Mr B., he looks more to quality and value. Another great error is to give great prominence to new varieties, as thereby an undue advantage is given to the gardener whose master has the longest purse, and who is most ready to part with it. New varieties should just stand upon their merits: if they are better than older varieties staged against them, why, let them have the preference, by all means; if not, let the older varieties be placed before them, as it is very unfair to place a new before an old variety simply because it is new. In the judging of fruit, fixed rules are even more required than in judging plants. One man gives it all to appearance, another all to flavour, while a third gives judgment according to an idea of his own, whereby both ways are combined, without being able thoroughly to explain by what means he arrived at his conclusions. I remember, ten or twelve years ago, of Mr Thomson, now of Clovenfords, propounding a rule for judging Grapes which I thought as good as any I ever had heard. I forget the number of points he proposed, or how he disposed of them, but if I

Digitized by Google

may be allowed to propose any system, the following would be my rule:—I would propose seven points as the maximum of perfection; and seeing that the primary object in growing fruit is to please the palate, I would give to flavour three points, to size of bunch, to size of berry, and to colour and bloom, one point each, making in all the seven points already spoken of. If a rule like this were adopted, and similar rules for other kinds of fruit made, there would neither be the trouble in judging, nor the dissatisfaction in competing, that we meet with so often, as competitors would know what to bring forward, and judges would know by what standard to judge them.

I now come to my fifth and last argument; viz., that horticultural exhibitions do not serve the purposes for which they were intended, because they give us no sure guide that the successful exhibitors are better, or perhaps as good, gardeners as many of the less successful competitors. It takes but little logic to prove the truth of this assertion; for to prove that one man is better than another in anything, it is necessary that all have a like start, and that all the opportunities and conditions throughout the competition are alike. Now every one knows that it is an utter impossibility for this to be the case, as there are differences of climate, differences of soil, and differences of position. There are differences of many other kinds: one man has an assistant for every acre under his care, another has not more than one for every four or five acres. One has an unlimited supply of manure, and all the other requisites necessary for managing a place to the best advantage; while another may be kept on short allowance of manure, and have every penny of expenditure for tools, plants, and suchlike, kept down to the lowest ebb. Now, seeing this to be the case—and who can gainsay it?—is it possible any one can assert that he who is the most successful exhibitor, must, as a consequence, be the best gardener? It is all very well and highly proper that there should be periodical exhibitions of fruits, flowers, and vegetables, in order that the best products of horticulture should be brought together, but it is very unfair to judge the producers by the results of such competitions. I could point to places where from £1000 to £2000 are spent yearly on the keep of the place, and to others of equal extent where not more than from £400 to £600 is the yearly expenditure. A man may for a time be placed in the former, and shine as a first-class gardener, and be looked upon as an ornament to the profession; circumstances afterwards may place him in the second, and what may perhaps be the result? why, utter failure; and he may not prove nearly so good a man as his predecessor, who was only looked upon as a plain, average man. Circumstances change everything, and nothing more so than the circumstances in which a man is placed in the gardening world. If I might be allowed to suggest a simple method by which the object I have in view might be attained, it would be the following:—Let every county or every district raise as much money as would give £50 as a first prize, £30 as a second prize, and £20 as a third prize, for the best-managed garden within its bounds. This, I think, would be easy of accomplishment, as I doubt not that most of the proprietors would subscribe more readily to such a fund than they are disposed to do to our horticultural exhibitions as at present constituted, because they would by an easy method ascertain who were the best gardeners, and, as a consequence, the best men would get the best places, and command the highest wages. The judges I would recommend to be appointed from neutral ground, and that they would be expected to visit all the gardens competing at least four times during the season, and at whatever times they themselves thought proper—their travelling expenses in all cases being paid for them. In making their awards, I would have them take into consideration not

Digitized by Google

only the general keep of the place, but also the quantity and quality of the productions, the number of hands employed, the expenditure for seeds, manure, tools, and all such, so that the results would be purely balanced against the total means at command. If something like this were done, taking also into consideration the rainfall, the nature of the soil, and the position of the gardens as to exposure and suchlike, I doubt not that the results would prove highly satisfactory to most, and in some cases highly astonishing to others.

I now take leave of the subject, and would assure your readers that these pages have been penned in the pure interests of horticulture, and not from any spirit of personal feeling in the matter, as has been insinuated by Mr Temple. Had I still been a competitor, I certainly would not have been so bold in the matter; but seeing that I have no petty personal feeling through recent defeat, the reader will perceive that I write only for the good of the cause.

JAMES M'MILLAN.

THE DUKE OF BUCCLEUCH GRAPE—MUSCAT FOR A STOCK.

THE commendable caution which the Fruit Committee of the Royal Horticultural Society have exercised in certificating this new Grape must be very satisfactory to its members, to the public, and to the raiser. Although the Committee expressed the greatest satisfaction with the appearance and flavour of the two bunches which were submitted to them at South Kensington, they very wisely withheld an award until, in accordance with the wish of the raiser, they sent Mr Barron to inspect the large stock of it in fruit at Tweed Vineyard, and to report on its constitution as a Vine in comparison with the numerous varieties with which it is associated. It would have been much more satisfactory to the public and to all honest raisers of new fruits if all new varieties had been extensively proved in more places than one, and had the Fruit Committee adopted the same cautious course as in the case of this Vine long before now. And now that an inspection by a competent authority of the growth and general characteristics of the Vines has been added to a mere judgment of an individual bunch or two at South Kensington, it is to be hoped that this judicious course will be rigidly adopted in every case. In fact, as has been pointed out before now, this is the only way in which a reliable verdict can be arrived at; and the public have a right to expect such a precautionary step both on the part of the raisers of new fruits and on the part of a Society supported by the public for such purposes as certificating seedling fruits.

The following is Mr Barron's report to the Committee after inspecting the Grape at Tweed Vineyard and at Drumlanrig:—

"G. F. Wilson, Esq., Chairman Royal Horticultural Society's Fruit Committee.

"It will be remembered that at the last meeting of the Committee, Mr Thomson, of the Tweedside Vineyard, Clovenfords, exhibited his new seedling Grape,

Digitized by Google

the Duke of Buccleuch, with the appearance and qualities of which the members present were favourably impressed; but before making any award to it the Secretary was instructed to visit Clovenfords, and report to the Committee the result of his investigations. This Mr Barron has done, and the following is the report which was read at the meeting :—

"In accordance with your instructions I visited Clovenfords last week, and saw the Vines growing there. Mr Thomson has it planted pretty extensively—1st, twenty-two Vines in one house at 6 feet apart, two rods to each Vine, the rest of the house being filled with Black Hamburg, Golden Champion, and other sorts; 2d, about forty Vines on either side of a span-roofed house, at 9 feet apart, three rods to each Vine, the rest of the house being filled with Muscats, Golden Champion, &c. The whole of these Vines were planted in the autumn of 1870. The greater portion of the crop (500 lb.) had been cut previous to my visit; there were still, however, about 250 bunches hanging, which enabled me to arrive at a pretty good idea of its bearing qualities. There was a singular uniformity in the appearance of the whole, both as regards the growth of the plants, general productiveness, size, colour, and general appearance of the bunches and berries. In growth it somewhat resembles Canon Hall Muscat, Mill Hill Hamburg, and Golden Champion, the shoots being rather gross, and in some instances not ripening thoroughly home. Generally, however, the wood was well ripened, the leading shoots being very strong and thoroughly ripened, of about the thickness of one's thumb. I could detect no spot or other blemish on the berries, whereas the Golden Champion alongside, although large and well grown, was much spotted. As to ripening, in comparison with the Black Hamburg grown in the same house under the same circumstances, it was much earlier—evidently some weeks. Few of the Hamburgs were ripe or fit to cut, whereas the most of the Duke had been cut and sent to market a month previously. The Hamburgs were, however, overcropped, which tends to retard the ripening. The Muscats under the same treatment had not begun to colour, whilst the Duke was dead ripe; and at Drumlanrig, the Muscats being ripe, the Duke was quite over-ripe and spoiled. Golden Champion, by comparison, was also quite green and acid. At Clovenfords and Drumlanrig each Vine of this variety seemed to have fruited as freely as a Black Hamburg, one bunch to each spur, the bunches being of a fair average size, of from 1 to 2 lb. each, and some larger. Grafted on to the Muscat, it did not seem to do so well; in one instance the fruit was much greener and later, and in another it had not set regularly, some berries being enormously large, and the rest small.

"The Duke of Buccleuch is a Grape which will evidently not keep long after being ripe, being thin-skinned. [We have kept it, after being quite ripe in July, till the middle of September quite plump and fresh.—*Ed. Gardener.*] It is extremely pleasant to eat, the flesh tender and juicy, with a rich sparkling acidity, somewhat of the Hamburg character. The berries are enormously large, round or oblate like the Dutch Hamburg, and have rarely more than two seeds in each. I should describe it as a very valuable summer Grape.—A. F. Barron."

Our experience of it grafted on the Muscat does not accord with the observations of this report.

We may here remark that, after experimenting on stocks for various Grapes, we have come to the conclusion that the Muscat of Alexandria is the best of all stocks. This has been our unvarying experience of

Digitized by Google

it. At the present time we have unusually fine examples of Gross Guillaume on two Vines in the same house, one Vine being on its own roots, and another grafted on the Muscat. (We have had this fine Grape on Hamburg stocks, but never so fine as on the Muscat.) The latter has the heaviest crop, the finest bunches, berries, and colour. We have found the Frontignac best on Muscat stocks, and this applies to all other varieties that we have tried on various stocks.

EDITOR.

THE GLASGOW INTERNATIONAL FRUIT AND FLOWER SHOW.

THE unprecedented rainfall and almost entire absence of sunshine which has prevailed throughout the whole of the past summer all over Scotland, and which seemed to gather up into a climax of wet and inclemency the week before the grand International Show which was held under the auspices of the Glasgow and West of Scotland Horticultural Society, led to many fears that the show of fruit would prove an almost utter failure. In spite, however, of such untoward circumstances, the show of fruit upon the whole was very creditable, though, as was to be expected, not nearly so extensive nor so fine in quality as at the Scotch Internationals of 1865 and 1869. The original intention of the Society was to hold its show in the large conservatory being erected in the Botanic Gardens, but owing to that building not being ready, it had to fall back on the Burnbank Drill-Hall and grounds, which, though perhaps less suitable than the former named place, is upon the whole a spacious and well adapted building for such a display of plants as were never gathered together in one place before, except at the great International of London six years ago. The hall is about 250 feet by over 100 feet, and it, besides numerous tents, was well filled with plants, flowers, and fruits, which did great credit to those who brought them forward. And it must be admitted that the Society manifested the greatest energy and encouragement in all the arrangements, which were carried out munificently and well. It would be well if the Royal Horticultural Society of London would follow the example of the Glasgow, and treat their judges at least less niggardly, and give more encouragement to gardeners at their great shows. On this occasion the judges were all provided for in the most aristocratic hotel in Glasgow, served with a splendid supper on the night before the show, conveyed to the hall in the morning in an omnibus and four, treated well there, and entertained at a grand banquet on the first day of the show. Edinburgh has the credit of inaugurating this state of things, and certainly Glasgow has if possible improved on it.

The prizes offered on this occasion were very liberal, as we intimated some months ago, and most of them were keenly contested. The chief fruit prize of £20, for twenty dishes, brought forward fewer competitors than usual, but the unfavourable season accounts in some measure for this. In this class Mr Johnston of Glamis was triumphantly first with two Queen Pines; Golden Champion—a magnificent bunch—Duchess of Buccleuch, Muscat of Alexandria, Black Prince, and Buckland's Sweetwater Grapes; Royal George, Noblesse, Stiring Castle Peaches; Elruge, Pitmaston Orange, Duc du Telliers Nectarines; reengage, Victoria, and Jeffreyson Plums; two fine Melons; and a large cluster

Digitized by Google

of Banana. Mr Ingram, Alnwick Castle, was second with good smooth Cayenne and Queen Pines, Mrs Pince, Eschalota Muscat, Black Hamburg, Black Morocco, Muscat of Alexandria, and Lady Downes's Grapes; two Melons, Oranges, Greengage and Jeffreyson Plums; Royal George and Barrington Peaches; Newington and Elruge Nectarines; Jargonelle Pears, and New Queen Apples. For the collection of sixteen fruits, exclusive of Pines, there were also only two competitors. The first position was taken by Mr Bain, Downton Hall, Ludlow, who had large but not well coloured examples of Black Hamburg, magnificent Buckland's Sweetwater, Madresfield Court, and Muscat of Alexandria Grapes; Walburton and Noblesse Peaches; Victoria Nectarines, Victoria, Greengage, and Washington Plums; Morello Cherries, and Stirling Castle Apples. Mr Temple, Balbirnie, Fife, made an excellent second with Royal Vineyard, Muscat, and Black Hamburg Grapes; Violet Hative, Bellegarde, and Noblesse Peaches; Elruge Nectarines, Victoria, Kirk's Seedling, and Jeffreyson's Plums; Brown Turkey Figs, and Astrachan Apples. For the collection of eight bunches Grapes there were three competitors, Mr Hunter, Lambton Castle, being first with very fine large examples of Golden Champion, Burchardt's Prince, fine, Trevoreen Frontignac, also fine, Barbarossa, Muscat of Alexandria, Black Hamburg, Raisin de Calabria, and Alicante. Mr Fowler, Castle Kennedy, was second with less but well-finished examples of Barbarossa, Alicante, Muscat of Alexandria, Lady Downes, Trebbiana, Muscat Hamburg, Victoria Hamburg, and Muscat Eschalota. Mr Johnston, Glamis Castle, was placed third with a grand bunch of Golden Champion, Alicante, Buckland's Sweetwater, Black Hamburg, Royal Muscadine, Muscat of Alexandria, and Oakley Park. Surely the detractors of Golden Champion will be silenced when it seems to be an indispensable Grape in collections brought forward by such growers. For the four varieties of Grapes there were numerous exhibitors, the first place being taken by James Loudon, The Trents, Shopshire, who had good Muscat Hamburg, Black Hamburg, Black Prince, and Muscat of Alexandria. Other exhibitors in this class had good examples of Bowood and Eschalota Muscats, and Muscat Hamburg. For the best two bunches Muscat of Alexandria, Mr Ross, gardener, Eccles, Dumfries, was first with two well-coloured and highly-flavoured bunches; Mr Johnston and Mr Fowler being second and third, in the order named.

The heaviest bunch of Grapes on record was brought forward by Mr Dickson of Arkleton, Dumfriesshire. It was a Syrian, weighing 19 lb. 5 oz. Mr Fowler had the same variety 14 lb. 11 oz. The first prize for the finest new Grape was awarded to Mr Thomson, Tweed Vineyard, for his Duke of Buccleuch. He showed a basket of it just ripe, and one that had hung in a ripe condition since the 1st of July, and one bunch which was also ripe at the date named. These were very large in berry, of the most beautiful amber colour, and without speck or shrivel. There can be no doubt that this is the best early white Grape extant, and will supersede the Golden Champion on account of its earliness.

Our space forbids the particularising of the numerous other classes, for to do so would fill our entire issue, seeing that there were over 2000 entries altogether. We however append the prize list of the fruit and principal plant awards.

The quantity of ornamental-foliaged plants brought forward was extraordinary, both in quantity and quality. The leading prize for the finest collection of plants, arranged for effect, was closely contested by John Russel, Esq. of Mayfield, Messrs Thyne, and P. Mackenzie of Glasgow, and their collections were never before equalled in Scotland. Messrs Thyne were placed first. Their

Digitized by Google

plants were considered less valuable than Mr Russel's, but they were exceedingly fine and well arranged, while Mr Russel's were considered by the judges less effectively staged. At all events, we were told by a nurseryman that few in Britain could have staged such a lot as Mr Russel's, and few if they could would have brought them out. The third group of Mr Mackenzie's were also very creditable.

Mr Williams of London brought an extensive collection of ornamental plants, very conspicuous amongst which was a magnificently bloomed example of Lapegeria rosea on a large globular trellis. He had also good plants of Davalia Mooreana; Miltonia candida grandiflora; Encephalartos Mackenzii, a very rare plant; some beautiful Pitcher-plants and Sarracenias, &c.

Messrs Veitch's collection of new and rare plants was very unique, and comprised among other things a most superb collection of Pitcher-plants, the splendid Cypripedium Dominianum, Todea Wilkesiana, Cocos Weddeliana, Masdevallia Veitchii, Dracæna amabilis, various Crotons, and some beautiful Begonias, conspicuous amongst which was one named Brilliant. Mr Bullen, Botanic Gardens, Glasgow, had a small collection of new plants, amongst which was a most distinct Dracæna named Goldieana from Old Calabar river, the only plant in the kingdom of it. The leaves are more like those of a Maranta in shape, and are transversely marked with white bars on a light-green ground. The plant has but recently been received, and when well grown it will form a most distinct and ornamental plant.

Mr Lees, Tyningham, received a first-class certificate for a remarkably fine bedding Verbena, a cross between the well-known Crimson King and Géant de Battailes, and an improvement on both. This cannot fail to take a foremost place as a bedding Verbena.

The prize for dinner-table decoration brought out only two competitors—namely, Mr Methven, Blytheswood, and Mr Lewin, Drumpellier; and they were awarded in the order we have named them. The only thing calling for particular remark in these two tables was probably the finest Queen Pine ever produced in Scotland, which Mr Methven had on his table, and which weighed over 7 lb., and was perfect in every way. We have omitted remarking on the Pines exhibited at this show, for they were very ordinary, and some of them were all but rotten, and should never have been staged.

The following are the prizes awarded in the principal classes:—

CLASS I. FRUITS (open to all).

Collection of twenty sorts of fruits—1. George Johnston, Glamis Castle; 2. Alexander Ingram, gardener to his Grace the Duke of Northumberland, Alnwick.

Collection of sixteen sorts of fruits—1. James Bain, gardener to Sir Charles Boughton, Bart., Downton-hall, Ludlow; 2. Mr Temple, gardener to Mr John Balfour, Balbirnie, Markinch; 3. D. Dickson, Mountmelvil Garden, St Andrews.

Collection of twelve sorts of hardy fruits—1. John Cumming, gardener to the Earl of Wemyss and March, Amisfield, Haddington; 2. John Brunton, gardener to Sir David Kinloch, Gilmourtown, Drem; 3. A. Crosbie, gardener to Sir James Colquhoun, Rossdhu Gardens, Luss.

Two smooth Cayenne Pine-Apples—David Wilson, The Gardens, Castlehill, Southmoulton.

Two any other sorts Pine-Apples—Alex. Ingram.

Eight varieties of Grape, one bunch each—1. J. Hunter, gardener to the Earl of Durham, Lambton Castle; 2. Archibald Fowler, Castle-Kennedy, Stranraer; 3. George Johnston.

Four varieties of Grape, one bunch of each—1. James Louden, gardener to Mr Thomas Barcris, The Trents, Chirk, Shropshire; 2. A. Bruce, gardener to

Digitized by Google

Mr James Fildes, Chorlton-cum-Hardy, near Manchester; 3. William Shaw, gardener to Mr William Raffin, Donsla House, Mayfield Street, Newington.

Two bunches black Hamburg Grape —1. Archibald Fowler; 2. Thomas Boyde, Oaklea, Galashiels; 3. George Johnston.

Two bunches Muscat of Alexandria Grape—1. J. Ross, gardener, Eccles; 2. G. Johnston; 3. A. Fowler.

Two bunches Madresfield Court Grape—William Wood, gardener to Mr John Leslie, Glasslough, Armagh.

Two bunches Lady Downes's Grape —1. Archibald Fowler; 2. James Smart, Neathart, Dolphinton, Peebles; 3. James Fraser, Stobo Castle.

One bunch black Hamburg Grape— 1. Thos. Boyd; 2. Archd. Fowler; 3. Chas. Irvine, gardener to Mr Geo. Wilson, Heronhill Gardens, Hawick.

One bunch Muscat of Alexandria Grape—1. Archd. Fowler; 2. James Ross; 3. James Bain.

One bunch of Muscat Hamburg Grape —1. Archd. Fowler; 2. D. Dickson.

One bunch black Alicante Grape— 1. Thos. Boyd; 2. John Craig, gardener to Mr John Reed, Glenhuntly, Port-Glasgow; 3. Jame Dickson, gardener to Mr John Jardine, Arkleton, Langholm.

One bunch Buckland's Sweetwater Grape—1. George Johnston; 2. Angus M'Intyre, Hamilton Crescent, Partick; 3. George Reid, Blackness Terrace, Dundee.

One bunch new Grape, or sort, in commerce six years prior to show—1. W. Thomson, Tweed Vineyard, Galashiels; 2. A. H. Moncur, Rockfield, Dundee; 3. G. G. Smith.

One heaviest bunch Black Grape— 1. James Dickson; 2. No Name; 3. Ronald Paterson, West Balgray, Maryhill.

One heaviest bunch White Grape— 1. James Dickson; 2. Archibald Fowler; 3. R. Hetherington, gardener to Mr F. Brown, Lantine, Newmilns, Ayrshire.

One bunch best-flavoured White Grape—1. A. Bruce; 2. James Brown, gardener to Mr C. H. D. Murray, Abercairns, Crieff; 3. William Shaw, gardener to Mr William Raffin, Donsla House, Mayfield Street, Newington, Edinburgh.

One bunch best-flavoured Black Grape—1. D. Dickson; 2. George Reid; 3. John W. Fortune, Castlemilk, Lockerbie.

One bunch Grape, finest bloom—1. A. Bruce; 2. D. Low, gardener to Mr J. Wilson, Hillpark, Bannockburn.

Collection of varieties of Muscat Grape—1. Archibald Fowler, Castle-Kennedy; 2. Alexander Ingram.

Collection of varieties of such Grapes, with their names, as are not included in other prizes offered —A. Bruce.

Vine grown in Pot and in Fruit (black)—1. Robert Adamson, Balcarres Gardens, Colinsburgh, Fife; 2. Alex. Ingram; 3. A. M'Leod, Newbattle Gardens, Dalkeith.

Vine grown in Pot and in Fruit (White)—A. M'Leod.

Melon, green-fleshed — 1. Robert Hetherington; 3. C. Irvine.

Melon, scarlet-fleshed—1. George Johnstone; 3. Robert Hetherington.

Twelve Figs—1. John Henderson, Haffield Gardens, Ledbury, Herefordshire; 3. Ronald Paterson.

Twelve Peaches, three sorts—1. James Brown; 2. George Johnstone; 3. James Loudon.

Twelve Nectarines, three sorts—1. George Johnstone; 2. James Brown; 3. Alexander Ingram.

Twelve Apricots — 1. John Cumming; 2. James Brown; 3. D. M'Donald, Kinfauns, Perth.

Twelve Plums, three sorts—1. John Brunton; 2. Robert Wilson, gardener, Walkinshaw, Paisley; 3. W. M. Robertson, Kaimes Castle, Rothesay.

Six Peaches — 1. Thomas Brown, gardener to F. G. M'Kirdy, Birkwood; 2. D. Dickson; 3. R. Wilson.

Six Nectarines—1. D. Dickson; 2. William Sharp, gardener to Sir John S. Richardson, Bart., Pitfour Castle, Perth; 3. James Brown.

Six Jargonelle Pears—1. D. M'Donald; 2. A. Crosbie; 3. James Martin, gardener to Mr James Ritchie, Blacket Place, Newington.

Six Pears, two sorts, fit for table— Wm. Carmichael, gardener to his Royal Highness the Prince of Wales, Sandringham.

Collection of Pears, twelve sorts— 1. Wm. Carmichael; 2. G. Miles, gardener to Lord Carrington, Cupcomb Abbey Gardens, Highwybcomb, Bucks; 3. D. Dickson.

Collection of Dessert Apples — 1. Richard Webb, Calcot, Reading; 2.

Digitized by Google

James Culton, The Gardens, Dildawon, Castle-Douglas; 3. Peter Robertson, Hartrigghouse, Jedburgh.

Collection of baking-Apples — 1. Richard Webb; 2. D. M'Donald; 3. Alex. Johnston, Mountstuart, Bute.

Six dessert Apples — 1. William Sharp; 2. A. Anderson, gardener to Mrs W. H. Brown, Ashley, near Ratho; 3. W. M. Robertson.

Six baking Apples — 1. Alex. Ingram; 2. George Mills; 3. John Cumming.

Pint of Gooseberries — 1. James Brown; 2. Thomas Fraser, gardener to Mr James Tweedie, Rachanhouse, Biggar.

Pint of Red Currants — 1. John Cumming; 2. James Brown.

Pint of White Currants — 1. John Brunton; 2. James Brown.

Specimen dessert decoration fruit and flowers — 1. John Methven, gardener to Colonel Campbell of Blythswood, Renfrew; 2. H. W. Lewin, gardener to Colonel Euchanan, Drumpellier, Coatbridge.

The best decorated Epergne with flowers, &c.—2. H. W. Lewin.

Six distinct sorts of Tomatoes (three each variety)—1. Ts. Lunt, gardener to Sir Michael Shaw Stewart, Ardgowan, Greenock; 2. James Williamson, gardener to Mr John Moffat, Ardrossan.

CLASS II.—FRUIT MERCHANTS.—No competition.

CLASS III.—FRUITS OF FOREIGN GROWTH.—No competition.

CLASS IV.—PLANTS (open to all).

Finest collection of Plants—1. J. & R. Thyne, 66 Buchanan Street, Glasgow; 2. Mr John Russel, Mayfield, Falkirk; 3. Peter M'Kenzie, 1 Gordon Street, Glasgow.

Finest collection of new and rare plants—1. James Veitch & Sons, Chelsea, London.

Six new and rare Plants—1. James Veitch & Sons.

Finest six Stove and Greenhouse Plants—1. Jas. Buchanan, gardener, Busby; 2. Wm. Boyd, gardener to Mr T. D. Findlay, Easterhill.

Six Plants, fine foliage—2. Archibald Chapman, Violet Bank, Langside; 3. Mr James Ollerhead, gardener to Mr Samuel Higginbotham, Killermont Gardens.

Three Stove or Greenhouse Plants —1. Robert Hetherington; 2. James Buchanan; 3. Robert Fleming, gardener to Mr T. C. Wakefield, Thornliebank.

Ornamental Foliage Plant—1. Jas. Ollerhead; 2. John James, gardener to Mr J. Findlay, Ferryfield House, Langside; 3. John Fleming, The Gardens, Kilmahew Castle, Cardross.

Finest Tree Ferns—1. John James.

Four finest Orchids — 1. William Boyd.

Finest specimen Orchids—1. Alex. Walker, Merrylee, Cathcart.

Three Cape Heaths — Neil Glass, Carbrook.

Six Ferns—1. Robert Fleming; 2. Archd. Chapman; 3. John Fleming.

Twelve British Ferns, in pots—1. Archd. Chapman; 2. William Hugh, 574 Springburn Road, Glasgow; 3. Alex. Walker.

Six Fuchsias — 1. John M'Innes, Maxwellton House, Paisley; 2. Samuel Kelly, gardener to Mr Wm. Hay, Eddington House, Langside; 3. Alex. Walker.

Three Fuchsias, sorts — 1. George Neill, Greenhead, Newmilns; 2. John M'Innes; 3. Samuel Kelly.

Four Liliums — 1. A. Walker; 2. James M'Leod, gardener to Mr John Stewart, Thistlebank, Helensburgh.

One pot Lilium auratum—Robert Taylor, gardener to Captain S. Stewart, Castlemilk. Six Zonale Pelargoniums—2. Neil Campbell, gardener to Mr J. Couper, Holmwood, Cathcart.

Twelve specimens ornamental foliage Pelargoniums—1. Neil Campbell; 2. Robert Taylor; 3. Duncan Gillies, Linwood Gardens, Linwood.

Four Cockscombs—1. Wm. Milne, Castlecraig; 2. G. Roberts, gardener to Mr George Adam, Woodside, Greenock; 3. Robert Kerr, gardener to Mr Duncan Shaw, Hopeton House, Greenock.

Six dinner-table plants—1. G. Irvine, gardener to Mr T. Blackwood, Woodhall, Port-Glasgow; 2. H. W. Lewin; 3. Neil Campbell.

Twelve hardy coniferous plants— 1. Wm. Barron & Sons, Elvaston Nurseries, near Derby; 2. Austin & M'Aslan, 16 Buchanan Street, Glasgow; 3. Dickson & Turnbull, Perth.

Digitized by Google

CLASS VI.—VEGETABLES.

Two Cucumbers—1. James Hutcheson; 2. Alex. Campbell, Cove Gardens, Gourock; 3. Robert Taylor.

Three Cauliflowers—1. Alex. Johnston; 2. George Gordon, Finnick, Drymen; 3. James Brown.

Two Cabbages (excluding Red)—1. Robert Taylor; 2. Arch. Lang, Cemetery Lodge, Dumbarton; 3. Wm. Boyde.

Two Red Cabbages—1. Arch. Lang; 2. James Cornock; 3. Robert Taylor.

Two Savoys—1. William Boyd; 2. Robert Hetherington; 3. G. Robertson.

Twenty-four pods Peas—1. William Frame, Craighall, by Larkhall; 2. C. Irvine; 3. James Thomson.

Twenty-four pods Beans—1. Robert Taylor; 2. James Cornock; 3. George Gordon.

Twenty-four pods French Beans—1. James Cornock; 2. David Tweedie of Carriden, Bo'ness; 3. W. M. Robertson.

Six Leeks—1. John Cairns, The Hersel Gardens, Coldstream; 2. James Hannah, gardener to Sir John M'Neill, Burnhead, Liberton; 3. James Brown.

Six Turnips—1. Alex. Campbell; 2. Rob. Taylor; 3. David Smeal, Garronvale Gardens, Denny.

Twelve Onions—1. Robert Taylor; 2. C. Irvine; 3. John Cairns.

Six Carrots—1. J. George, gardener to D. Y. Stewart, Barassie, Troon; 2. Archibald Lang; 3. James Armour.

Three heads Celery—1. R. Hetherington; 2. James Culton; 3. William Boyd.

Six Parsnips—1. Robert Taylor; 2. James Thomson; 3. R. Hetherington.

Four Beet—1. Duncan Campbell, Alva Gardens, by Stirling; 2. John Brunton; 3. David Smeal.

Twelve Potatoes—1. William Noble, Ladeside, Newmilns; 2. David Smeal; 3. Ben. Greig.

One pot Parsley, single plants—1. James Faulds, Kirkmuirhill; 2. Rob. Hetherington; 3. J. Muirhead, Denny.

Six varieties Peas—1. Wm. Frame; 2. James Brown; 3. George Gordon.

Six varieties Potatoes—1. William Kirkpatrick, gardener to Lord Abercrombie, Airthrey Castle, Stirling; 2. C. Irvine; 3. Duncan Campbell.

A box of Vegetables—1. C. Irvine; 2. William Kirkpatrick; 3. A. Hetherington.

Calendar.

KITCHEN-GARDEN.

There is during this month much work to be done which forms a connecting link between the past season's and next year's supplies, such as clearing off old crops, and arranging the plots for next year's work; and it is well to note what the ground has received in the way of manure, and what crops have been produced, and let the arrangement be made for the ensuing season: when system has attention, economy follows. There should be in well-cultivated gardens very little empty space for some time to come, as all should have been filled with something as it became vacant—Coleworts, winter and spring Cabbage, Spinach, &c. But the continued wet weather will have prevented much from being done which was intended to have attention. It is early to begin trenching yet. The manure-heap may be reduced to make way for material, such as leaves, vegetable refuse, and anything which is to be used as manure. The old manure may be wheeled from the store to the ground where it is to be trenched or dug in: a covering of earth will keep in its virtues from the influence of weather. Late Peas will be readily devoured with birds, and nets or other means should be used to prevent their ravages. Let the stakes of past crops be placed orderly, where they may be safe for another season's use. Every part of the garden should be made as orderly as possible; decaying leaves, and the remains of used-up crops, are very objectionable when near dwellings. Beet and Carrots may be taken up soon; let them dry a little before they are stored. They should be kept cool, but not wet, and currents of drying air should not pass through among them. A coating of dry straw answers well as a covering; a pit such as is used for Potatoes is often used

Digitized by Google

successfully for storing. Parsnips keep best in the ground, lifting a quantity as required: Jerusalem Artichokes also keep best in the ground. Frost may be kept out by placing a quantity of litter over the tubers, and the stalks, when nipped by frost, will do, when cut over, to keep the litter in its place. Chicory may be trimmed, and a few roots placed in a dark place to sprout for salading. Lettuces full grown may be lifted with all the roots and earth attached, and placed in an earth pit, frame, or where they can be safe from frost. Endive should be blanched as formerly directed. Radishes grown to a fair size may be covered in the ground with coal-ashes, and they will keep tender and fresh for some time. All salads, such as Cress, of sorts, may be kept growing, where a little heat can be supplied: plenty of air is necessary when the crop is fit for use. Frames may be placed over Cauliflowers, where they are placed in sheltered quarters to stand the winter: steep ridges and the shelter of a fence is a good position for them. Cauliflowers, to be grown under hand-lights, may have the lights placed over them, and abundance of air given. If the plants are pricked out, and yet to be lifted, let all the earth the roots will carry be taken to secure their being checked as little as possible. Lettuce may be thinned out, and the thinnings planted thickly under protection. Cabbage planted in August and last month should have the hoe nicely worked among them on a dry day. Dustings of soot may be used freely among them, lime-water given two or three times at short intervals generally keeps slugs and grubs from eating through the plants at their collars. Lay down Brocolis and Kale facing the north if they have grown too luxuriantly. Kidney Beans have not done well in cold districts, and the greater care is now necessary to prolong the supply. Established plants which have a frame placed over them, and are well aired, may keep on bearing for weeks. Clear Asparagus beds when the stems are ripe, but where they do not ripen freely, it is well to cut them down piecemeal, and not too close to the ground. Earth up Celery a month before it is required for use. It is not well to earth it too high, as in damp seasons like this the crop is liable to rot: dustings of lime may keep slugs in check. If the Celery grub should appear, it can only be kept down by hand-picking: a large breadth of plants may be gone over in a few hours. Hang up Tomatoes to ripen when they cannot remain out longer in safety. Plant French Beans for growing under protection. Keep up successions of Mushroom-beds in cellars, &c. M. T.

FORCING DEPARTMENT.

Pines.—Fruit intended to keep up the supply of ripe Pines from the end of this month onwards through the winter months will now be swelling rapidly. Range the night temperature for these from 70° to 75°, according as the nights are cold or warm. On bright sunny days shut them up early in the afternoon, so that the thermometer rises for a time to 80° or 85°; and gently dew the plants overhead two or three times weekly, avoiding wetting the crown if possible, for moisture standing about them has a tendency to make them grow large and unsightly. Keep the atmosphere moist in proportion to the amount of sunshine. Overmuch moisture in the air during dull weather also produces large crowns, and draws any suckers that may be in the plants. Keep the bottom-heat steadily about 85°, a few degrees less being better than a few degrees more. See that the soil is kept constantly moist without being very wet. And now that less water is required than for the last two months, avoid watering a whole house or pitful of plants indiscriminately, but look carefully over them twice weekly, and water those only that require it. When a large and constant supply of Pines is required, a quantity of the latest Queens will now be ripening: give these an abundant supply of air on all favourable opportunities, and when a quantity of fruit ripens at once, remove some of them to any dry place where they can have a temperature of 50° just before they are fully coloured. They can thus be kept in good condition for some weeks, and so keep up a more regular supply. Where there are a number of suckers in smooth Cayennes and other winter sorts that are large enough to pot,

Digitized by Google

it is best to take them off and pot them at once. They are more apt to get drawn among the foliage of the parent plants; and potted now, they root and get established before winter sets in. Succession Queens intended for early starting should, with the decline of light and heat, have less water both in the soil and air. The soil should just be kept from becoming mealy dry. They have now well filled their pots with roots, and should be kept in a state of comparative rest for three months. We have frequently wintered these without a drop of water from the middle of this month till the beginning of January. To do this they should not be plunged close down on the pipes for supply of bottom-heat, but have 2 or 3 feet of leaves or tan below them, and be firmly plunged to the rim of the pots. The temperature at night should be lowered to 60° by the end of the month, and when with sun the day temperature exceeds 70°, give air to keep it from rising to a degree that would excite the plants. August and early September potted suckers will now be well rooted, and will grow freely. And to prevent their drawing, give a liberal supply of air, and avoid a high night temperature and excess of moisture; 60° to 65° is quite high enough. The bottom-heat should also be moderate, 75° to 80° being quite sufficient. If there is any likelihood of the earliest and largest of them becoming severely pot-bound before spring, give them a small shift and more room between plants at once. If the stock becomes drawn in autumn, there is little chance of growing them into fine plants afterwards.

Vines.—Where the earliest Grapes are to be got from pot-Vines, lose no time in removing these under cover, for protection from heavy rains. When very early Grapes are required, and the Vines have been early matured and rested, they may be started by the end of the month. Dress all wounds made in pruning twice over with styptic. It will facilitate their starting if they can conveniently be plunged in a mild bottom-heat. It is well always to put a few more plants into heat than are required for starting thus early: a few of the plants may fail to start satisfactorily, and it is useless to start thus early at all unless with early thoroughly well-ripened Vines. A rather higher temperature is required to excite Vines into growth than is necessary six weeks hence. It is well to bring down the tops of the Vines to the same level as the pots, so that the whole length of the rods be as nearly as possible in the same heat. This will cause them to break more equally. Permanent Vines intended to be forced in succession to those in pots should be pruned immediately. Remove all the loose bark; scrub them with a brush and a little soap. Thoroughly clean all the glass and wood-work; dress the cuts with styptic; remove the surface-soil from the border, and replace it with fresh soil mixed with a little rotten manure, so that everything be in readiness for starting when the time comes. Keep Vineries, in which the fruit has all been cut, cool and well aired. In cases of young vigorous-growing Vines, we fear that, owing to the very wet sunless summer, the wood may not be so thoroughly ripened as is desirable. In such cases it will be desirable to fire the Vines through this month, give plenty of air in fine days, so as to mature the wood thoroughly before the leaves drop. This applies with equal force to recently-planted Vines that have been allowed to make a rambling growth. In their case go over them, and remove by degrees all superfluous laterals that may be crowding the main growth, and keeping sun and air from acting on them. Examine all Grapes that are quite ripe two or three times weekly, and remove all mouldy berries before they affect others. Avoid the common practice of firing on damp days beyond what is necessary to prevent stagnation of atmosphere; rather put on a little fire on fine days when the houses can be well aired and dried. All Grapes intended to hang through the winter should be ripe by the end of September; and where this is not the case, let the ripening process be assisted with fire-heat and a circulation of air. In wet climates it is a good plan to protect all Vine-roots in outside borders from the rains of winter by wooden shutters, tarpauling, or, best of all, corrugated iron roofing.

Peaches. — Where late Peach-houses have lately been furnished with young trees that have grown vigorously, more than likely, after so wet and dull a summer, the wood will

Digitized by Google

not be well ripened, and it will be desirable to apply fire-heat where such houses are, as they should be heated, giving a free circulation of air until the growths are firm and well ripened. Young trees that are growing too grossly should be partially lifted and root-pruned just as they are shedding their leaves. The operation should not be done earlier, otherwise the wood will shrivel and suffer. The earliest trees will be leafless before the end of the month, and what pruning they require should be performed by the end of the month, and everything about the house in the shape of repairs attended to before starting them two months hence. Now is a good time to get new borders ready for planting young trees next month. The soil should be a rather strong loam, with no manure beyond a few bones.

Figs.—Look over the trees, now that the fruit is all gathered, and remove superfluous shoots where they exist. Keep the borders drier, and the atmosphere cool and airy. Early plants in pots, that may have been plunged outdoors for some time, should now be protected from heavy rains. These will soon be leafless, and can be stored in a shed till required for forcing. See that they do not suffer for want of water at the root.

Melons.—Where late crops are still to ripen, keep the night temperature at 70°; and when ripening, they will be poorly flavoured unless they have a circulation of dry warm air. Just give them enough water at the root to prevent the foliage from drooping with sun. Late crops are very subject to split if over-watered, and too much moisture makes them flavourless.

Cucumbers. — Young Cucumber-plants will be growing freely. Stop them at every joint, and do not allow them to bring too many Cucumbers to maturity at one time, or the plants will be weakened thereby. Keep up a genial growing atmosphere, and keep the temperature at 70° all through this month. Give air on all favourable opportunities; and if the roots are near the pipe, see that they do not suffer for want of water. Do not by any means allow them to become crowded with foliage, which is productive of thin weakly growths, which invite mildew, &c., as the season becomes more damp and sunless.

Strawberries in Pots. — It will now be necessary to make preparations for protecting these from heavy drenching rains. If cold pits or frames cannot be afforded them, lay the pots on their sides with the plants facing south. This, of course, applies only in case of heavy continuous rains. Where plants are late it will assist them if they can be placed in frames under glass for a month, to induce them to mature their growth. But where our former directions have been carried out, they will have filled their pots with roots and have fine strong crowns.

Notices to Correspondents.

We regret that we are compelled for want of space to hold several papers over till next month. We beg to thank our correspondents for these contributions, which shall have our earliest attention.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire.

J. T. B.—We think the affection you speak of must be caused by excess of moisture at the root, but cannot say for certain without seeing and examining the case.

D. Clingen.—1. Polystichum aculeatum. 2. Polystichum aculeatum proliferum. 3. Campyloneurum reticulatum. 4. Niphobolus lingua. 5. Aspidium coreaceum.

W. C. M.—Your Vine-leaves are very severely affected with thrips. Sponge them with a solution of tobacco-water.

Forced Roses.—See an article in our present issue, which we trust will meet your case. You can, if you choose, purchase plants in pots prepared for forcing; but the instructions referred to wil meet the alternative.

Digitized by Google

T. M.—Your case is a common one in such a season of unusual wet. Cover your outside borders with shutters or tarpaulin so as to throw the wet off. Cut out all the cracked berries, or they will decay and breed corruption all over the bunches where they occur.

S. R.—We decline recommending nurserymen. There are plenty respectable ones; and you can make private inquiries.

D. A. Pearson.—You do not say whether your glass is heated or not, but we presume it is. In which case, why not grow Grapes? or if you have plenty of Grapes for November and December, then the better sorts of winter Pears will suit your purpose, and these do well in pots.

Gardeners' Wages.—Articles in the 'Gardener' on the wages question have been temperate and judicious, if you will allow me to say so. But in that of this month's from the "Squire's Gardener" there is an absence of several points that require to be kept in view. 1st, Even if labourers' wages have advanced 2d. in the shilling, it does not follow head-gardeners' ought also; for in the case of the latter an advance is permanent, in that of the labourer it may be very transient. 2d, If the head-gardener's be raised, the coachman's, butler's, gamekeeper's, grieve's must also. That is a serious consideration to employers whose income has not risen "2d. in the shilling." And, 3d, gardeners should remember that if the wages of gardeners are to be so much increased, some employers may—rather must—diminish the number employed.

David A. Pearson.

[We are far from wishing to be immoderate on this question, but we think our correspondent must admit that head-gardeners' wages are below what they should be, all things considered. The great majority of landowners and men engaged in commerce have now a greatly increased income compared to former times. And looking at the fact that many gardeners—honest, worthy men—cannot now do more than eke out an existence, after rearing and educating a family decently, on their present salaries, we are sure our correspondent will admit that it is time they should share a *little more* of their employers' wealth. Moreover, we are certain that if this country goes on to prosper, in course of time employers of gardeners will have to put up with an inferior class of men. And why should those who spend hundreds of pounds on any gardening fancy they embrace be so exceedingly slow to add a few pounds to the head-gardener's wages, on whose care and skill their successful culture depends? Many such men have a hard struggle those dear and prosperous times; while the mechanic and the miner, who do not even need to have a character, would scowl at the gardener's wages. Depend upon it, if a careful selection of gardeners were made, and their present wages increased—yea, even doubled in a great number of cases—the employers would be the greatest gainers of all. We are happy to know that many gardeners have recently got an advance; but we also know that others are doing nearly double now for the same salary that was paid twenty years ago, and this ought not to be.—Ed.]

An Old Subscriber.—Your letter is too late for a reply in full this month, but an article will appear on the subject in our November issue.

Y. G.—Cut your Nepenthes to within 6 or 8 inches of the pot, and it will break with several shoots. You will find the top very difficult to strike after it is cut entirely off. The best way is to layer it in some rough gritty sand in a close, moist, and high temperature.

Wm. Aleskbrook.—We have letters for you from Polly and others. Will you please forward us your proper address?

A Correspondent will find full directions for propagating the Camellia in our present issue.

A. B.—Received with many thanks, but owing to a press of matter we can not publish till November. We think the specimen sent a Solanum.

D. Mackie.—Black Prince is the earliest Strawberry we know.

Errata, September No.—Page 417, last line, the words "and almost acutely" should be "and the leaves are almost acutely," &c. Page 422, third line from top, *for* "trays ½ inch deep" *read* "trays 1½ inch deep."

Digitized by Google

THE GARDENER.

NOVEMBER 1872.

THE CARROT.

WHEN the whole nation is lamenting the all but total failure of the Potato crop, and when all Europe is being ransacked to supply our markets with that valuable but capricious esculent, seems a proper time for calling attention to what I consider one of the best substitutes for the Potato that we have; namely, the Carrot. When properly cooked, the Carrot is highly nutritious as human food. It forms excellent fodder for sheep, cattle, and horses, either alone or mixed with cut hay or straw: when given to cows in winter, it largely increases their flow of milk without giving it a strong taste, as turnips do. Pigs thrive on it when cooked, and deer are passionately fond of it in a raw state. It contains a large amount of saccharine matter, and is easily stored and kept during the winter. Add to this that it can be grown to the greatest perfection on land that will scarcely produce any other crop, and of which there are in the United Kingdom hundreds of thousands of acres in a state worse than waste. I refer to our marshy bogs; and I think it will at once appear evident that the cultivation of the Carrot deserves more attention than it has hitherto received from a nation that has an ever-increasing population, without any increase of territory from which to draw supplies of esculents for them. The paucity with which the vegetable is cultivated is the more singular when the price it realises is taken into consideration: an average crop of Carrots is worth £40 an acre, a good one worth £60, with a ready sale. I will now give two examples that will prove that our most worthless bogs are just the soil on which the Carrot can be grown to the greatest advantage, if properly set about. Some forty years ago, Mr Wilson, at present forester at Penryn Castle, had the management of an estate in the Island of Mull, where I was apprentice under him. There was a

Digitized by Google

morass—for it could be called nothing else—of some 7 acres in extent, not worth half-a-crown an acre, which it was proposed to bring into cultivation. He began by trenching it 3 feet deep, and putting a turf drain in the bottom of every third trench. The way this was done was by cutting the bottom of the trench with a true incline to a main drain, or rather ditch, cut down the centre of the bog. In this trench there was cut a wedge-shaped drain, and over this was laid a course of the tough turf taken from the surface of the bog. These drains at the end of ten years were discharging water as freely as when cut, and they laid the bog dry. On this ground various vegetables were grown successfully, but notably Carrots were the most successful: in fact, I have never seen such Carrots since then, not even at horticultural exhibitions; and I have no doubt, if they had been near a good market, they would at the present day have realised £80 an acre.

My next example shall be a recent one. One of my neighbour farmers here had a piece of most unpromising land that for years had been a morass; but a branch of the North British Railway having been driven through it, led to its being drained. He sowed Oats on a small part of it, after ploughing it up, but he did not get back his seed. He remarked to me that if I would lend him a man who could sow them, he would try Carrots on it. I did so, and he sowed about half an acre: they did well, and the venture seemed to be so satisfactory that last winter he ploughed two more acres of the bog, and had them sown with Carrots as before, but it was too late in the season before the soil could be got into proper condition, so as to insure a good crop. Yet such as it is, with very moderate attention as to thinning and weeding, he has sold the two and a half acres to a greengrocer, who takes them up himself, at £90. In view of facts such as I here quote, and which can be verified any day, is it not singular that so little effort is put forth to drain and reclaim the vast tracts of far better land than the two cases I have given that abound in these islands, when the cry is, More food for the people?

It is worthy of remark that the Carrot may be grown, year after year, on this sort of land, without any deterioration of its quality; and as a manure for it, nothing is more suitable than guano or soot. If my memory serves me right, it was kelp, broken like crushed bones, that Mr Wilson used where he grew certainly the finest Carrots I ever saw on land that a year or two before was worthless.

Any person with practical cultural skill, who travels much in these islands, must be struck with the want of enterprise on the part of the owners and occupiers of the land, where he sees vast tracts of it in little else than a state of nature, that might, as can easily be demonstrated, produce largely of cereal, esculent, or animal food for the

Digitized by Google

people; while it would, at the same time, improve the climate of the country, and add largely to their own health. Capital can be found for every plausible scheme, where there is the prospect of 5 per cent, that can be got up from Cape Horn to the North Pole; while at our own doors it could be laid out to far greater advantage, both for those who make the investment and for the nation at large.

WM. THOMSON.

TWEED VINEYARD, GALASHIELS.

FORCING OF SEAKALE AND RHUBARB.

THE time for commencing to force vegetables will soon be round again —indeed it has already begun, as the first pit of French Beans is now on the way, and the first beds of Mushrooms. Rhubarb and Seakale must soon have their turn. Of the former there will certainly be an extra demand this coming winter and spring, for puddings and pies, owing to the very partial Apple crop throughout the country. Rhubarb is very wholesome, especially in spring, when tender, and at all times when forced. Unlike Seakale, it is none the better to be much blenched; it looks better to be of a clear pink colour, and, we think, tastes better. Rhubarb, when forced, should not be peeled; the skin is quite tender when cooked—at least that is our taste. There are several varieties of Rhubarb and two or three species, which we have seen in old gardens, including the Turkey, not now often met with. The Victoria is one of the very best varieties for any purpose, but for forcing there is an old variety we used to grow, which is much earlier than any other, the stalks of small size, of a fine clear pink colour even in the open air, and very smooth in the stalks, the foliage finer in texture than the large sorts. Unfortunately we do not know the name, and do not at present possess the variety. Its disposition for early growth makes it very valuable for forcing. All plants which have to undergo early forcing should be specially prepared for that purpose. Rhubarb is very acommodating in that respect; still it is of advantage to have the plants intended for forcing strong and vigorous, and their energies fully developed; that is, the same plants should not be early forced year after year. Young plants of not more than two years' standing should be preferred, and better if they have not been gathered from in spring and summer, but allowed to retain their early foliage so as early to mature the season's growth. Plants which have been yielding a supply of Rhubarb for spring and summer use are sure to make a second growth after midsummer, and are therefore not so able to start into a third growth in early winter. The soil on which it is grown should be

Digitized by Google

light and sandy, rich and moist, and well exposed to the sun. Sometimes Rhubarb is slow to start in the forcing-house, just as those plants which have been forced and much cut without lifting in the open ground will often not start into growth until midsummer—no doubt from exhaustion; it is therefore essential that plants intended for very early forcing should not be cut at all in spring, nor allowed to throw up flower-spikes.

When the foliage has decayed in November, the first lot may be dug up for forcing, saving the roots carefully, but dispensing with much ball, removing them to a mushroom-house or bottom-heated pit, packing them closely together, and filling in between with fine soil, such as leaf-mould, and giving a watering with tepid water. It is not necessary that light should be quite excluded, and the heat should not exceed 60°; 50° to 55° is high enough to begin with: overmuch heat will as effectually prevent the growth starting as too little, and by slow forcing the quality and quantity will be better. Rhubarb may also be forced in pots or boxes, or without either, plunged in a bed of leaves in the open air, and covered overhead. We have also seen a plan which might be worthy of imitation for amateurs and housekeepers forcing their own. Boxes were made about 2 feet square at the base, and about 3 feet high, narrowing somewhat upwards; on one side a door was fixed, like that of a little cupboard, about 2 feet high, leaving 1 foot of the bottom of the box to contain the Rhubarb roots and soil; the boxes could be stood in a corner of the kitchen, or other warm place where they are to remain. The roots and soil introduced from the garden, and with a little attention to watering, a supply of forced Rhubarb can be obtained by this very simple means.

The later crops of forced Rhubarb to come in about February and March may be forced on the open ground by simply covering the plants with the ordinary Rhubarb pot, and filling in between with leaves and litter: very little heat is required to excite growth in these months. The roots of Rhubarb may be thrown away after forcing if the stock be plentiful, as fresh offsets are preferable for new plantations. They may, however, be planted, and will ultimately make good plants; but it is useless to plant them out in the open ground at once; they must be protected from frost, and encouraged to make roots, until the sun's heat has begun to warm the open garden-soil about the beginning of May. If planted out sooner, in cold ground, the greater part of them will probably perish.

Seakale is if possible more accommodating than Rhubarb, it being a native of these islands—so says Hooker in his 'British Flora;' but we have never seen it wild, and Hooker does not give a locality. It, like the Cabbage, is a member of the subdivision Brassicæ, of the Cruciferæ

Digitized by Google

family, which name is borrowed from the Gaelic word *praislach* or *bresic;* query, does the Scotch word Brose come from the same root? We have often partaken of that delicacy made from Cabbage, and also from Turnips, with, however, a slight lubrication of butter and cream. Seakale is indispensable for the kitchen in winter, when vegetable delicacies are scarce, although it is not so great a favourite as Asparagus or French Beans. It is easily forced, if good crowns have been prepared the previous summer. A light warm sandy soil well enriched with manure suits it best, although it will grow in almost any soil; indeed, it is like Horse-radish, quite a weed; in light soils any small bit of root will grow, and from considerable depth. To have strong crowns fit to force, pieces of strong roots should be chosen 6 to 8 inches long: we have the trimmings of the plants lifted for forcing the previous winter. Planting should be done about the last week in April, putting the sets in just overhead in the soil. A bunch of small crowns is sure to come away; these must be thinned out to one or two heads at most, to get them strong. When the foliage has ripened up about November, a quantity may be lifted for the earliest lot to force, the forked roots trimmed off, and only the main root and crown retained. A dozen or more heads may be potted in large pots, and plunged over-head in a bed of fermenting leaves, with another pot inverted over them, and light and air excluded. A small supply can be maintained in this simple fashion; but a more economical and expeditious plan, where a large quantity is required, is to pack the roots close with some soil between in a bottom-heated pit, or in a division of the mushroom-house, with a slight bed of warm dung underneath, and effectually excluding light and air, else blanching is hopeless. Seakale, when nearly forced, is very susceptible to over-much heat: 55° to 60° should not be exceeded, else the plants may be killed or spoiled: better to force slowly: three weeks are required for the earliest batch; a week will be sufficient in March. Cut the heads when 6 to 8 inches long; if left longer, they only lose in strength and get spindly. We cut the heads with a piece of the solid crown attached; some do not cut so close, as a supply of smaller pieces will push from the side-buds; but they are really not worth cutting when good strong Kale is so easily raised.

In the south, good Kale can be had from plants forced in the open ground by Christmas, with very little heat from the leaves gathered in the autumn; consequently it is only the very earliest that may be lifted. For later successions in spring it is only necessary to cover up the crowns with the Seakale pots, and earth up or cover over with sufficient litter or leaves to exclude frost and air; and if the plantation be in a convenient position to the manure-yard, where tidiness is not essential, the same plants may be forced for several years in succession, always

Digitized by Google

every year working in loose rich stuff among the plants. Some gardeners prefer plants raised from seed for forcing; it is no doubt quite easy to have crowns sufficiently strong for forcing in six months, in well-prepared ground, and with attention to watering if the season proves dry. We have done it when pinched for plants to make up a sufficient breadth of ground, but on the whole we prefer to start with good strong thongs of roots than seed. Sometimes seed does not come up so regularly and satisfactorily as might be expected from such a hardy indigenous plant, and the turnip-fly seems to have a particular liking for your Seakale seedlings. THE SQUIRE'S GARDENER.

NOTES ON HARDY CONIFERS.

CUPRESSUS (THE CYPRESS).

THE hardy species and varieties of this genus form a group of surpassingly handsome evergreen shrubs or bushy trees, natives of Europe, Asia, and America; and though, with the exception of "sempervirens," which has been known in British gardens for above 300 years, they are of comparatively recent introduction, no family of plants has been more extensively used in the decoration of our parks and pleasure-grounds. Their distinct symmetrical style of growth and beautiful tints of colour produce the most charming effects, whether in combination with shrubs and trees of other genera, massed by themselves, or planted, as they very often are, singly as picture-trees on lawns.

Though all the sorts seem to prefer a light loamy soil, they are found to do well and form fine specimens in most garden-soils, if the land is thoroughly drained and the subsoil warm and moderately porous. In every case it is indispensable that they should be so sheltered as to protect them from violent winds, from which, in common with many other perfectly hardy but densely branched evergreens, they are extremely liable to suffer damage.

All the really hardy species are worthy of being largely represented even in a limited collection of ornamental shrubs; and while we have noted only such, we may remark that there are others equally handsome, though rather tender for many districts, but which may be introduced into the more favoured localities with a prospect of success.

Sempervirens (*the Upright Cypress*).—This fine evergreen tree is found widely distributed over Southern Europe, Greece, Turkey, Persia, and Asia Minor, and was introduced into Britain about 1540.

Though rarely seen higher than from 20 to 30 feet in British gardens, it rises in its native habitats to heights of from 50 to 80 feet:

Digitized by Google

and in Italy, where it is extensively planted both as an ornamental and as a timber tree, specimens are to be found over 100 feet.

In habit of growth and general appearance the Upright Cypress resembles the Lombardy Poplar; having a straight spire-like form, the side branches growing erect and close to the stem, the whole plant densely foliaged, and of a dark sombre green colour. The wood has long been famous for its hardness and durability; and being fragrant, beautifully veined, and capable of receiving a high polish, is fitted for the finest cabinet-work.

As an ornamental shrub, in this country, it is much admired, and but for its unfortunate tendency to grow late in autumn, particularly while in a young state, and consequently to suffer from early frosts, it would undoubtedly be met with much more frequently. If planted, however, in a dry porous soil, and in any airy but well-sheltered situation, it will be found after a few years to ripen its growths earlier in the season, and in most cases to form an attractive specimen.

A very distinct variety named **Horizontalis** differs from the species in being much dwarfer, and in its branches being spread out in a horizontal direction; it is equally hardy, and worthy of introduction to a collection of ornamental shrubs.

Lawsoniana (*Lawson's Cypress*), indigenous to Northern California, was first discovered by Mr Jeffrey, and subsequently by Mr William Murray, who sent home seeds in the autumn of 1855, accompanied with the following graphic description of the tree as seen in its native wilds:—"This was the handsomest tree seen in the whole expedition. It was found on the banks of a stream in a valley in the mountains, is about 100 feet high and 2 feet in diameter. The foliage is most delicate and graceful; the branches bend upwards at the end like a Spruce, and hang down at the tip like an ostrich feather. The top-shoot droops like a Deodar. The timber is good, clean, and workable."

As seen in our pleasure-grounds it is a rapid-growing, plume-like shrub of a symmetrical conical form, abundantly clothed with branches, the dense branchlets slender and drooping, and of a light-green, sometimes slightly glaucous, colour. The cones, which even on very young plants are produced in great profusion, contain very frequently fertile seeds, and in early summer add to the attractions of the plants by their beautiful golden, and in some varieties purple, colour.

Of a plant so widely distributed and so extensively planted in almost every shrubbery and park in the country, it seems unnecessary to say much here by way of commendation. Few introductions of recent years possess such a combination of those qualities which are so desirable in an outdoor ornamental shrub; its thorough hardiness, freeness of growth in almost every variety of garden-soil, if moderately dry and

Digitized by Google

the subsoil porous, along with its singularly graceful habit of growth, must always insure its admission into the most limited collection of decorative trees and shrubs. It is most assuredly one of our finest lawn-trees, and no plant is better adapted for small villa gardens, where, from its close compact habit, it economises space, and harmonises well with the building, to which it must necessarily be closely planted.

From a considerable number of varieties obtained from seed since the introduction of the species the following may be selected as really distinct and worthy the attention of cultivators; they are equally as free-growing and hardy as the parent:—Argentea, a very beautiful form with the branchlets of a glaucous hue; Variegata has a variegation of bright gold intermixed with the light green of the branchlets; Nana, a very dwarf variety forming a neat round-headed bush, densely branched, and suitable for pots or small beds—the foliage is bright green; Erecta viridis, a most distinct and elegant variety, with a close columnar style of growth, the foliage deep green: this is one of the finest coniferous shrubs in cultivation, and ought to be in every collection.

Macrocarpa (*the Large-Fruited Cypress*).—This fine species was found by Hartweg on the hills of Monteroy in Upper California, growing in great abundance, and rising to heights of from 50 to 70 feet, with a circumference of about 9 feet, and was by him sent home in 1847.

It is here one of the most beautiful of ornamental trees, very hardy, and of remarkably rapid growth, forming a compact cone-shaped specimen, thickly clothed with heavy massive branches and foliage of a bright grassy-green colour. Though quite equal to our climate as far as frost is concerned, it is most impatient of exposure to high winds, which not only seriously damage the foliage, but, from its density, act so powerfully upon it as frequently to tear it out of the ground; a well-sheltered situation should therefore be invariably chosen for planting. Any good rich garden-soil will be found suitable, if well drained, and the subsoil warm and porous.

The form known as **Lambertiana**, introduced by Mr Lambert a few years earlier, though very distinct in its habit of growth, and long considered a distinct species, is now ascertained to be only a variety, cuttings from old plants of Macrocarpa generally, though not always, assuming the broad, horizontal-branched, flat-headed habit of Lambertiana, exactly corresponding to that of the mature trees on the Californian mountains, which are described as having a "far-spreading branching flat top, like a full-grown Cedar of Lebanon." We have therefore in Lambertiana a miniature old tree, and in Macrocarpa the same tree in its young or undeveloped state. Whether we are

Digitized by Google

right in our theory or not, however, we have no hesitation in recommending both sorts as superb and effective lawn plants, the one so distinct in outline and style of growth from the other, that they may be planted side by side with the happiest results.

Goveniana (*Gowen's Cypress*).—This species, named in compliment to J. R. Gowen, Esq., late secretary to the Horticultural Society of London, is another introduction by Mr Hartweg, who found it on the western slopes of the mountains of Monteroy, in Upper California, and sent home seeds in 1847, describing it as a dense bush from 6 to 10 feet high.

It is here a pretty evergreen shrub, of a broad, conical habit of growth, clothed to the ground with slender feathery branches drooping gracefully at the extremities, and of a light-green colour, attractive at all times, but specially so when in summer it is covered with its bright golden catkins, which it produces at a very early period of its growth. In exposed and wet situations it is liable to suffer from frost, but is found to do well in most districts when planted in a dry gravelly or sandy soil, and well sheltered from violent winds. It is somewhat remarkable that under favourable conditions it grows with great rapidity, and that there are already in this country specimens fully double the height named as the maximum in its native habitats by its discoverer, who in all probability took his notes from plants growing in exposed places, or in thin poor soil.

M'Nabiana (*M'Nab's Cypress*).—A very hardy species, named in compliment to James M'Nab, Esq., the urbane and talented curator of the Royal Botanic Gardens, Edinburgh. It was first discovered by Jeffrey on the Shasta mountains, in Northern California, at an elevation of 5000 feet, and rarely rising higher than a bush of about 10 feet. Seeds were sent home by Mr Murray in 1855.

It is here a neat, compact, conical shrub, with fine glaucous foliage, and makes a distinct and interesting specimen for a lawn, particularly useful where an effective dwarf bushy shrub is required. It seems to do well in most soils, but thrives to perfection in such as are deep and of a light porous character. HUGH FRASER.

COUNTESS OF HADDINGTON VERBENA.

I SAW this seedling Verbena raised by Mr Lees at Tyninghame in August last year: there was a border of it, and on the other side of the walk I saw Crimson King, an excellent sort; but I must say the Countess of Haddington was very superior. It was covered with bloom, and grew more freely than Crimson King, and, if anything, I thought it brighter in colour; but its great value is in its blooming and growing so freely. It is a great acquisition to the Verbena tribe, and will please the most fastidious. I also saw it in bloom 6th October, and growing freely, while Crimson King had not grown kindly this season.

J. A.

Digitized by Google

EUCHARIS AMAZONICA.

I AM seriously afraid, Mr Editor, that I must apologise to "A Constant Reader" and yourself for negligence. I ought to have sent this off some time ago, and intended so to do; but you all know Burns's truism about the "schemes of mice and men." Now to come to my subject. I find Eucharis amazonica one of the easiest plants to flower freely, providing that it be induced to make plenty of roots and strong vigorous growth. Put four to five well-ripened bulbs in a 32 pot, using fresh compost that will not soon become sour; then plunge the pots in a genial bottom-heat, so as to induce root action, and the chances are ten to one that they will throw up flower-spikes. Within a stone's-throw from where I am now writing, there are hundreds of bulbs waiting to be treated in this manner, and they will be invaluable for cut-flowers during the winter and spring months. Your correspondent asks if they should be left dry long enough to "lose their leaves;" most decidedly *not*. This is an evergreen plant, like Vallotta purpurea, and though it requires rest in order to flower it freely, still its rest must be comparative, not absolute, inaction. To dry off this plant as one does Amaryllis would be to ruin the plant entirely. As to the same bulbs flowering repeatedly, I will let the following extract from the 'Gardeners' Chronicle' speak for itself. Mr Davis does not say whether he plunges his plants in bottom-heat, but I find the latter by far the best plan. Another lovely white-flowered plant is Pancratium fragrans, which I find blooms very freely treated like the Eucharis.

"EUCHARIS AMAZONICA.—I have been very successful in flowering this plant, my mode of treatment being as follows: About the middle of November I turn out the bulbs, wash the roots, take off all offsets, and repot them in a compost of one-half turfy loam and one-half well-rotted cow-dung, subsequently placing them on a stage in a small stove. Of eleven bulbs so treated in November 1870, five flowered three times, and six flowered four times each, during last season, from March until the end of October. As soon as they are out of flower they are put back into the stove, or a vinery at work, till they throw up again. Last November I potted ten bulbs in a similar compost, two bulbs in a 10-inch pot, and have now one of them with seven blooms in a conservatory. By giving rich soil, plenty pot-room, and ordinary stove temperature, it is certainly one of the easiest grown as well as one of the most useful of stove flowering-bulbs.—*Thomas Davis, Haselwood, Upper Norwood.*" F. W. B.

VERBENA VENOSA AND GERANIUM BIJOU.

IN the 'Gardener' for October, page 471, A. B. states that Verbena venosa and Dactylis glomerata make a very effective bed, and I have no doubt they do. I have, however, another combination of it here that I want to advise A. B. to try next year—viz, Verbena venosa and Bijou Geranium. I have two circular beds of it here, that have looked beautiful all the season, and one looking well even now. No rain hurts either, and we have had our share here.

Next year, if all is well, I intend to have a large bed planted in the same way, with two rows of Gazania splendens as an edging round the outside. That, I think, will make it even more effective.

The mode of propagation as stated by A. B. is what I practise here.

THE GARDENS, LLWYNDEE, W. HUTCHISON.
October 11, 1872.

Digitized by Google

HINTS FOR AMATEURS—NOVEMBER.

FRUIT-TREE planting may now be carried on without delay, not forgetting to keep in view the "Hints" of last month in regard to this matter. Lifting bushes is not attended to so much as it might be. Moss-covered stems, stunted growth, dying branches, are some of the things which indicate sluggish root-action, or it may be the roots growing into unhealthful or very poor soil. Gross and badly-ripened wood are also indications of lifting being necessary. Good healthy loam and mulching has been our strength in all such cases, and also with Coniferæ and shrubs. Figs may now be protected—Spruce branches, straw bands, or a covering of dry Fern, are some of the best means of protection. Peaches, Apricots, or other fruit-trees on walls which are not ripening, may have their shoots well cut back, and gross leaves cut through the middle. Lifting the roots is the best remedy for such cases. Clear off all moss from stems, and wash with quicklime. Save prunings of Apples and Pears if wanted for grafting, and bush-prunings may be placed in soil by the ends to keep them fresh for cuttings. When they are made, all buds may be taken off except three at top, cutting the shoot to have the strongest portion left, which may be 12 to 15 inches long. Fork manure over the roots of bushes after they are pruned without disturbing the roots. Old soil may be taken away 2 feet round the collars, and fresh earth or mulching placed in its stead; and the middle of the rows may be well dug and prepared for cropping if there should be space. The fresh earth round the stems will do much to prevent the harbouring of caterpillar larvæ. Rasps may be thinned, vacancies made up, or new plots planted. They require deep rich soil and a cool position. Plenty of vegetable mould used in the ground suits them well. When the canes are shortened, it should be done according to their strength; say from 3 to 6 feet. We prefer training Rasps upright, like the letter U.

Fastening of trees to walls may have attention when weather will permit. Tying with matting, twine, &c., is preferable to using shreds —neatness and no harbour for insects are objects to be kept in view; drawing nails, which injures the walls and leaves nests for vermin, is to be avoided. Cast nails should be broken over, but systematic nailing renders this unnecessary, as when a shoot is cut out another is tied in its place to the same nail; but wires placed horizontally, fastened in with small cast-iron studs, is the most economical system of holding fruit-trees to walls we have seen, and in the long-run by far the cheapest. We have tried all the methods which we have seen in print; copper wires tightened and twisted round small cast-iron nails is a simple method, and is scarcely visible.

Digitized by Google

Alterations in grounds, walks, drains, fences, &c., may have attention this month. Laying of turf and Box-edgings may be done. The usual clearing off leaves will give much work; it is well not to let them lie on grass any length of time, as they damage turf. The dead occupants of flower-gardens will now be cleared off, and all the beds fresh and tidy with shrubs, hardy foliage-plants, annuals, or bulbs. Aucubas, Hollies, Boxes, Yews (English, Irish, and variegated), Thorns of sorts in berry, Skinnerias, Rhododendrons (early kinds), and a host of other things, when dwarf and neat, do well for keeping the flower-garden gay in winter. We use extensively pieces of evergreens with a few rooted plants for furnishing vacant beds.

Gladioli may be lifted, and if they are not ripened they may be placed in sand till the stems die down. Lift Dahlias, and dry them a little before they are stored away free from frost. Finish the planting of bulbs of all sorts, and protection from frost will do much to help them. Plants in the ground with their dead tops cut off may have ashes, Fern, or other protection placed over the roots; this applies to Aloysias, Fuchsias, &c. Plants trained on walls and not quite hardy may require branches or mats placed over them. Plant Roses in good strong soil; mulch or otherwise protect their roots from frost; branches stuck moderately thick among them are good protection. Look over bedding-plants in pots and boxes; give them water at root carefully, but enough to moisten the whole ball of earth. Keep all structures free from damp; use tepid water in the early part of the day. Damp and absence of fresh air are two evils to be guarded against. Fire-heat should only be used to expel damp and keep out frost from green-house plants. Primulas, Cinerarias, and Calceolarias must now have all the light and air that can be given; those to flower late should not become pot-bound. Violets, Tea-scented and China Roses, bulbs of sorts, Lily of the Valley, and all other useful shrubs and herbaceous plants, may be prepared for forcing, taking a few into gentle warmth occasionally as required; violent heat will ruin them for a season. Remove bulbs from under their covering before they grow much. Keep Pelargoniums free from damp and insects. Pot Liliums for next year's flowering, and put them where frost will not reach them.

M. T.

ACER NEGUNDA VARIEGATA AND PERILLA.

One of the most effective foliage beds we have ever seen is Acer negunda variegata about 3 feet high, planted rather thinly with a groundwork of Perilla and an edging of variegated Periwinkle. The latter plant is not nearly so much grown as it deserves. D. T.

Digitized by Google

FIG-CULTURE.

NO. II.

Propagation. — The Fig is perhaps the most easily propagated of all the more tender fruit-bearing trees or bushes. Wherever a branch touches the soil in the growing season, it there very speedily throws out roots, and can therefore be very readily increased by layering. It also produces suckers freely, and these can be detached and trained into any form required. And it is easily increased by eyes or cuttings in spring, much the same as is practised in Vine-propagation. I, however, prefer those propagated by cuttings for all purposes and forms of training. The cuttings should be selected and detached from the trees while in a dormant state, and laid in by the heels in moist soil, where severe frost cannot affect them, and where at the same time they will be kept cool. The straightest, shortest-jointed, and best-ripened growths of the previous season, about 8 inches long, having a strong terminal bud, are best. In detaching them from the parent plant, take with them an inch or two of the two-year-old wood. All that is necessary in preparing them for the cutting-pots is to cut them cleanly through just at the union of the one year's growth with the other. The middle of February is a good time to put them into heat. Drain the required number of 4-inch pots efficiently, and fill them firmly with sandy loam. Make a hole in the centre of each for a single cutting, and place a little sand under their base and round them. Water them, to settle the sand firmly about them, and plunge the pots in a bottom-heat of 80° to 85° when the temperature of the air does not exceed 60° at night, and shade them during sunshine. It is desirable that the formation of roots should be as nearly as possible contemporaneous with top growth ; and a rather strong bottom, with a comparatively low air temperature, favours this. Over-watering must be avoided; and if they are placed in a close propagating-house, pine-pit, or dung-frame, very little will be necessary to keep the soil moderately moist until the buds begin to push and leaves are formed, after which their getting once very dry may prove fatal to them. If they do not root as soon as they have formed a leaf or two, they do so very soon after ; and until they do form roots keep the foliage moist, and do not expose them to over-much air. By turning a plant or two carefully out of their pots it can easily be ascertained when they have formed roots, after which gradually dispense with shading, and air more freely.

Allow them to grow in the 4-inch pots till they have well filled them with roots, and then shift them into 6-inch pots, draining them well, and using one-year-old turfy loam without any manurial addi-

Digitized by Google

tion. They will now grow rapidly without bottom-heat, and should have as much light as possible, and be aired sufficiently to keep them from making weakly long-jointed growths. Figs are very fond of moisture, and may now be well syringed every sunny day at shutting-up time, which should be sufficiently early to cause the heat to run to 80° for a short time, but not subjecting them to a higher night temperature than 60° to 65°, according to the weather.

The description of cuttings we have recommended have generally a cluster of buds near their points; and as their training must begin with their growth, these buds must be dealt with accordingly. Whether the plants are ultimately intended for pot-culture, or as bushes, or trained trees on trellis near the glass, we in all cases prefer a plant with a clean stem of from 10 to 12 inches at least. All lateral growths must therefore be removed or rather prevented by rubbing off the buds, and the leader alone allowed to grow to the desired height, when the top bud should be pinched out. When to be planted out and trained to a trellis 2 or 3 feet below the level of the first wire, the height at which they are stopped must be regulated accordingly. I consider it of the greatest moment in the successful culture of the Fig that every tree or bush for pot-culture or planting out should be trained with a clean stem. For when allowed to form growths sucker-fashion near the surface of the soil, it is impossible to balance the trees with uniformly fruitful growths. As I am now treating of plants to be planted in borders, and trained near to the glass like Vines, I will leave the training most desirable for pot-plants for the present, as their cultivation in pots will embrace that point also. Their natural inclination, when in a young state, to grow too rampant, makes it most desirable that plants being reared for planting in borders should be induced, if possible, to form a stubby habit of growth before being planted out; therefore we do not recommend them being planted the year they are propagated, but to be confined to a rather small pot with poor soil. When they have formed a leading shoot to the desired height, been stopped, and have broken two or three buds at the top, shift them out of the 6-inch into 8-inch pots, and place them in a light house, where they are most likely to make short-jointed and well-ripened wood.

If after being stopped they break into more than three growths, rub off all except the leader and one on each side of the stem. Should any of them break with less than three, cut a nick above the one that is desired to break, and more than likely it will come away. When the leader has grown about 15 inches, stop it and the two laterals again, to cause another pair of lateral growths to break horizontally, and with another leader, thus laying the foundation for their

Digitized by Google

being trained horizontally to the wires of the Fig-house. They can be kept growing thus in a temperature not quite so high as for Vines till the middle or end of August, after which they will require more air and a drier atmosphere, in as light a place as possible, to thoroughly ripen their growths. It is astonishing the immense bushes that can be formed the first season even from single eyes, if shifted on and pinched; but the object in the case of the plants now under consideration, as has already been stated, is not so much size the first year, as a well-compacted growth, and a proper foundation for permanent horizontally-trained trees in the Fig-house. And it is questionable if it would be any loss of time, in bringing trees into a fruitful condition, to keep the plants two instead of one year in comparatively small pots, to get them into what may be termed a semi-stunted growth.

As soon as they have ripened their wood and shed their leaves, they can be stored away in any place where they will neither be exposed to severe frost nor to a temperature high enough to excite them into growth before spring, keeping them just moist at the root, but nothing more. About midwinter they should be pruned, if they require any pruning at all, after the way which we have recommended them to be stopped when growing. The trees will have a leading shoot and two pairs of horizontal growths. If the leading shoot is, however, longer than is sufficient to reach to two wires of the Fig-house beyond the highest pair of laterals, cut it back to that extent; and if the lateral growths are not thoroughly ripened, shorten them back to firm wood. Remove all the buds with the point of a sharp knife from the leader, except the highest three, one of which will form the leader, and the two next to it for the lateral growths to train right and left to the wires, and other two buds to break into growth, to furnish growths for the lowest unfurnished wire, thus leaving on the leading stem of last season's growth five buds to furnish a leading, and two pairs of horizontal growths for the two lowest unfurnished wires. By pruning the trees when at rest, they do not bleed so much as they do when cut in spring with the sap in motion.

Time and Manner of Planting.—The best time to plant young trees, the preparation of which has just been detailed, is in spring, when they begin to swell their buds, and are about to start into growth. If kept in a cool place, as recommended, this will take place about the end of March or early in April, according to the mildness or coldness of the season. As has already been stated, the counteraction of the Fig's natural tendency to a gross unfruitful growth in the younger stages of its progress is always an important point, necessary to the speedy furnishing of a Fig-house with fruitful wood. The method of

Digitized by Google

planting must also be directed to this end. Perhaps a less gross growth can be had the first season by just turning the matted balls of roots out of their pots, and inserting them entire into the border, ramming the soil firmly about them. But such a mode of planting any tree is highly objectionable; and in the case of Figs there will be strong roots circled at the very bottom of the balls, which will strike deeply down into the border, and leave the surface parts of it unoccupied with roots for a long time, and consequently less under the control of the cultivator.

The best way is to entirely shake the soil from the roots, and to carefully disentangle them, and cut closely back all the thickest of them, leaving those only which are more fibry and close to the stem; and in the operation of planting, to spread these regularly out in the border, covering them with not more than 3 or 4 inches of soil. Presuming that the border is made of such porous material as has been recommended, and not wet, it should be trodden firmly down before the trees are planted. This prevents it from holding so much water in suspension as when in a more loose and spongy condition, and, as a consequence, assists in checking a too vigorous growth. When the trees are all planted, at from 8 to 10 feet apart, the surface of the border should be slightly higher than it is ultimately intended to be, as it will in course of time subside a little. Settle the soil about the roots with water applied through a rose, and tie the trees loosely, for the present, in their places, training the main stem straight up the roof of the house, and the laterals horizontally to the wires, and they are ready for a start.

Of course, in planting a house thus, there will be ample light admitted to the body of it for a few years, to admit of a row of Figs in pots being grown on each side of the passage, either plunging them in the border, or standing them on the surface. These will yield a supply of fruit till the permanent trees come well into bearing. Some plant a double quantity of trees, and remove the supernumeraries as the permanent require the space. But seeing that planted-out trees never bear very freely for several years after being planted, I recommend those in pots in preference until they become unnecessary and impracticable from the extension and bearing condition of the planted-out trees, which are far less troublesome than plants in pots, unless in the case of very early forcings perhaps.

Training and General Management the First Year.—Immediately the trees are planted, keep the night temperature at 55°, allowing it to increase 10° or 15° by day with sunshine. As soon as they have well burst their buds into growth, raise the night temperature to 60°, with a corresponding increase by day. Keep the atmosphere

Digitized by Google

genially moist, and syringe the trees freely with tepid water early in the morning; and when the house is shut up in the afternoon, give more or less air every day, according to the weather. Watch the progress of the buds, and if the three terminal buds directed to be left at pruning-time start freely into growth, and the two lower ones do not show signs of also moving freely, cut a notch into the wood with a sharp knife immediately above the latter, to check the flow of sap past them, and they will grow more in proportion with those higher up.

With the syringings recommended and a moist atmosphere they will not require water applied immediately to their roots for some time—not at least till they have formed some leaves, and have begun to grow freely. But even then avoid giving them too copious a supply, but just give sufficient in conjunction with the syringings to prevent their being checked injuriously for want of it; otherwise the tendency to produce strong growths will be promoted. As the season advances and less fire-heat is required, advance the temperature to 65° and to 70° at night; and as the trees grow more rapidly, give a corresponding amount of air, but always in conjunction with sprinklings, to keep the air moist and the foliage free from red-spider.

Usually the leading shoot pushes away into growth with greater vigour than the lateral; advantage should be taken of this tendency to manipulate it so as to get it to throw out lateral growths right and left, instead of allowing it to push ahead without doing so, and the following season to have to cut it back to get it to break regularly. There are two ways of handling this leading growth to get it to furnish the wires with horizontal growths the first season. The one is to pinch or rather bruise the point of it a little below each wire, so as to completely check or stop its growth, and cause it to burst into growth at the axils of the leaves, one of which growths is again trained as the leader, to be again stopped for the same purpose, and the other two trained right and left to the wires. This method does not result in so straight and trim a main stem as is the consequence of the second method, and which is to allow the leader to force on its way till it has passed three or more of the wires, then to be stopped and have a notch cut half-way through it at those buds that are best situated for furnishing the wires with what may be termed cordon shoots. This will nearly always cause these buds to swell and grow a little, especially if the leaders of the lower and stronger cordon branches are stopped at the same time. In the case of strong-growing varieties it is astonishing the extent of foundation that can thus be laid for the future tree. The system of allowing great growthy leaders to extend themselves and rob the lower portion of the tree, and then to cut them back perhaps to the first or second unfurnished wire in spring, is a great waste of plant force and time

Digitized by Google

too. Besides, it has the tendency to the production of a few strong unfruitful growths, instead of a greater number of more fruitful ones.

The lateral growths formed the previous year, when the young plants were in pots, should be dealt with in the same way as the main stem, it being necessary that they also should be furnished with lateral shoots, to supply the fruit-bearing wood of the future.

Throughout the whole season the trees should be subject to a moist atmosphere and liberal syringings, for the Fig in a growing state delights in moisture; and when not sufficiently supplied with it, red-spider is sure to infest it. This is more especially essential as they should not be over-stimulated at the root with either water or manure of any kind before they come freely into bearing. The result at the close of the first season should be as much of the formation in the way of shaping the trees as possible with moderately strong but thoroughly matured growths. At the close of the season nothing should be withheld that is necessary to thoroughly consolidate or ripen the wood, and fire-heat should be increased in October, and the air kept dry and circulating about them till this end is thoroughly attained.

(*To be continued.*)

POT-BOUND FRUIT-TREES.

As some of your readers may not have quite understood my statements in regard to the fruit-trees, in my paper which appeared in your July issue, and of which "T. F." seems to be a representative, as exhibited in the 'Gardener' for September, I shall now endeavour to give, if possible, a little more intelligible account of them. I will at once remind "T. F." that I did not state that No. 1 pots were ruinous to fruit-trees, but I do repeat they were by far too small pots for the trees in question, which ought without doubt to have been planted in a border, as they were all furnished with masses of long and very fibrous roots, which to have cut back would have been an outrage on vegetation, although many of them were not of the slightest service to the trees, from their position. It is one thing to allow a tree to become pot-bound, as "T. F." terms it, but quite another to force it into such a state by rolling up the roots like a bundle of strings and cramming them into a given space, as were the trees we adverted to. I beg to assure my friend "T. F." that I have long since held the theory that fruit-bearing trees or plants have the end in view of their culture—viz., fruit—secured most expeditiously by limiting the roots to given space or pot-room, with attention to the foliage and liberal treatment at the roots; but at the same time the fibres should have room to perform their natural functions, which they certainly had not in the above case. We remember of once taking part in the lifting of a Vine, the appearance of which necessitated examination, and we found the roots rolled up much in the same manner as in the case of the trees. The Vine was more than likely planted out of a pot without the roots being properly disentangled and spread regularly among the soil; and undoubtedly the wellbeing of any plant in such circumstances is very much at stake.

D. M.

ISLAY, *6th September.*

Digitized by Google

AUTUMN FLOWERING-PLANTS.

TORENIA ASIATICA.

This is a fine thing in a collection of stove flowering-plants, which for the soft and pleasing shades of its blooms is always greatly admired, especially when in masses. It is very easily grown: young plants or cuttings early in spring make large plants by autumn if they receive no check. Cuttings root freely in silver-sand and leaf-mould, in a mild bottom-heat: when rooted, pot singly into 3-inch pots, using equal parts peat, good fibry loam, and leaf-mould, and a good dash of sand, placing them, when the night temperature is kept about 65°, close to the glass, shading them for a few days: a start will soon be made, when the points should be pinched out of each shoot to get a good many breaks close to the surface of the pot. Attend to them with water and syringing daily. Another shift will soon be required, which should be given at once, so that the roots do not get matted. If this should happen, it causes a check to the plant, as the roots will not take nearly so quick with the fresh soil as when shifted at the proper time. The same soil, with the addition of a little old cow-dung put through a half-inch sieve, also a little charcoal to keep the soil open and porous; at this potting a light stake ought to be put to each leading shoot. By this time the season will be advancing, and the temperature of the stove will be higher: with this and syringing twice a-day they will make rapid growths. It will now be time to decide what shape or form each plant is to be trained into. A few in 6- and 8-inch pots are useful, putting in about seven neat light stakes 18 inches high above the pot, training a shoot up each. When at the top, pinch out the centre, and laterals will break from almost every bud. When in bloom this size is very handy for decoration. Treat those in 8-inch pots the same way, only putting in more stakes. If larger plants are required, shift on a few plants until the desired size is arrived at, when a trellis should be put on and securely fastened to the pot. Almost daily attention will be required to tie in the shoots regularly all round. They are also admirably adapted for hanging baskets in early autumn. For this work the middle of May will be found soon enough to strike the cuttings. Put some of the earliest Epiphyllum in the centre, and the Torenia to cover all the sides and bottom of the basket, letting the shoots hang down a little to take off the stiff appearance which they have if closely tied to the basket. When done flowering, withhold water to a certain degree, exposing the plants to the sun as much as possible to harden the wood, when they will winter in a temperature of 55° very well if kept rather dry. In the following February, if they get a good watering with tepid water, and are then

Digitized by Google

plunged in a gentle bottom-heat, with top-heat about 65°, and regular syringings, they will soon break, when cuttings should be at once taken, as they make better plants than the old stools of the previous year.

MANDEVILLEA SUAVEOLENS.

This is a lovely conservatory climber; and where a few climbers are grown this should always be one of the number, and deserves a good situation. The flowers, which are pure white with a delicious scent, are extremely useful for either cutting for glasses or button-holes. To grow it well, and get a large return in the way of flower, it requires planting out in a well-prepared border, of equal parts good rough peat, fibry loam, silver-sand, and charcoal the size of pigeons' eggs, all well mixed together. If a quick display is wanted, it will be the wisest thing to procure a good strong stool, which, if all goes on well, should by autumn cover a large space early in spring. Never let it suffer from the want of water while growing, also syringe it at least once every day until the month of September. Red-spider is almost certain to attack it; this moist treatment in a measure will prevent it gaining a footing. As there will be little if any flower the first season, prune much the same as Vines about January. About a month later, carefully remove all the loose soil from the surface of the border, then give a top-dressing of fresh soil, the same as previously recommended, when a liberal watering with tepid water may be given, and on all bright mornings a gentle syringing, continuing this daily up to the time the flowers begin to open, when, if the border is inside and requires water, let a little manure be added: if in an outside border, and the season is wet, no artificial watering will be wanted; sprinkle a few handfuls of guano over the border when a shower is expected. After it is done blooming, the same process of thinning and pruning will be required as the previous year. A. H. T.

SAXIFRAGA LONGIFOLIA.

So far as ornamental foliage is concerned, this is by far the most strikingly ornamental Saxifrage that we have seen. It grows into immense star-like rosettes, from 9 inches to nearly a foot in diameter, the leaves being studded along their finely-serrated margins with white dots or incrustations. It exhibits but very little disposition to bloom, but when it does flower it almost rivals S. cotyledon for effect in point of blooming. This being a perfectly hardy plant, of extreme beauty, and so well adapted for grouping or planting in long lines, we predict for it a most popular reception when it becomes as plentiful and well known as it deserves to be. We have grown it by the hundred this season, and mean to grow it by the thousand. D. T.

Digitized by Google

POTATO DISEASE.

So much has already been said and written on this subject that it may be thought nothing fresh can be said. We readily allow that a large amount of nonsense has been written, and continues to be written, on Potato disease. But if we would only bring our everyday common-sense to bear on this subject, if the nature and constitution of the plant had been more considered, we might have discovered, if not a remedy, at least something of the cause of the mischief. I claim nothing original or novel in the ideas I promulgate; they are the result of observation. An idea has prevailed in many minds, and prevails still, that Potatoe disease is caused by the bite or sting of an insect. The Aphis vastator, poor fellow, has had much laid to his charge since 1845. I have long considered this as a very far-fetched cause. Certainly I for one hold him acquitted. In dealing with this subject, we ought to consider the nature of the plant, its constitution, and the conditions under which it has been cultivated and is still cultivated. The Potato has been so much changed by cultivation that it is now in a very different state from the original; and being in this artificial state, it follows the course invariably followed, whether in the animal or vegetable kingdom, when unduly developed—it loses its natural or inherent energy; it loses constitution or power to resist injurious influences, and so falls an easy prey to adverse circumstances. It is the same with many other things. Many of the finer sorts of wheat are, from constitutional weakness, much more liable to blight than the old hardy sorts. So it is with cattle; our finely-developed breeds cannot stand the hedge side in a rough day, as some of us have amply experienced. Now, here in the Potato we have a naturally delicate plant in a highly-developed state, which of course makes it still more delicate, and liable to be seriously affected by its surroundings. As to the origin of the Potato disease, I have already said that I reject the idea of its being produced from the bite of an insect. I have no doubt, Mr Editor, but you could readily find scores of clever gardeners who would undertake to produce Potato disease just as readily as they would to produce mildew on Vines, with a house full of cracked and useless Grapes, or a house full of gouty diseased Cucumbers. Consider the conditions requisite to produce mildew, and you come very near those required to produce Potato disease. A low temperature is requisite for both—a dull, heavy, unsummer-like state of atmosphere. We may put it in something like this, and say, Given Potatoes at a certain stage of growth; a certain saturated and soured state of soil; a dull, cold, cheerless, atmosphere; no evaporation, because no sun; a dull unpleasant feeling pervading every one: this state of things was not

Digitized by Google

far to seek in July and August last; so I say, given the above state of things, and the *net* result is Potato disease. I hold to this statement in spite of the opinions of doctors or the reports of commissions. I hold that it is a natural consequence of an unnatural organisation. The cold moisture settles on the leaves and stems, and very soon acts on the highly sensitive, because highly developed, Potato plant. The surface is tender and somewhat succulent, therefore the moisture easily adheres, and, affecting the tissue, soon affects the whole plant. That certain bodies or certain plants are more likely to be affected by certain diseases than others, is an everyday proved fact; and we must all allow that there is truth in the law of natural selection, for where plants or animals are left to nature, "the weakest go to the wall." Having, I hope, convinced my readers that Potato disease is atmospheric, and not the result of any insect, we may be asked, What cure or prevention is proposed? I wonder when we shall have a cure for a wet hay-time, or a preventive for a late, cold, unpropitious harvest, such as has been experienced this year? I have no cure to offer;—precautions may be useful. We are often told that Potatoes formerly did well on almost any land; so they will now with favourable seasons. But in an unfavourable season its enfeebled constitution has not the resisting power it had formerly; dry sharp gritty soil is undoubtedly best in a wet season, though it may yield a poor crop in a dry season. It is folly to plant Potatoes in heavy undrained land. If no other land can be had, let the work be done by the spade, the rows planted 3 feet apart; and if a wet season let them be sticked like peas, which will allow some portion of the soil being exposed. A good plan is, instead of sticks, to allow them to grow pretty long before earthing up, and lay the tops all one way: by this means the stems are covered for a greater length, and the disease is not engendered so near the tubers. We have just dug up 3 acres, formerly woodland sharp gravel —Potatoes not large, but scarcely any disease. Is this an argument for *phospho-silicon*? We shall see. S. X.

VIOLA PERPETUAL YELLOW.

We have grown all the Violas that have been brought before the public and recommended for bedding purposes, and consider this by far the best of the Yellows that we have yet seen. When it was supplied to us it was said to bloom all the year round, and it most certainly does so. It was in bloom all winter in the cutting-bed, and all through the summer it has produced in continuous succession the most extraordinary crop of bloom of any bedding Viola, or in fact any other plant that ever we have used for bedding, and it looks as little like exhausting its blooming power now as ever. The habit is excellent, and the colour a clear and most effective yellow. Not a single plant has given way. D. T.

Digitized by Google

THE PANSY.

A REVIVAL of that enthusiasm which was once predominant—guiding alike the mind and taste of the florist-flower-loving community—has again occurred. Once more the Rose, the Carnation, the Pansy, Phloxes, Hollyhocks, Dahlias, Primulas, &c. &c., occupy a place of honour in the gardens of those recently wholly given up to a few novelties, whose qualifications can never compare with those well-proven *garden worthies*. How many would have exchanged their "sub-tropical" for a Pentstemon bed this sunless summer, or a colourless ribbon of the popular Lobelia speciosa for a striking line of Imperial Blue Pansy, which has defied the elements of wind and rain, and sustained an incessant sheet of bloom throughout the past four months? And, again, to substitute the poor bleached yellow Calceolaria, whose golden purses were developed only to adorn the plant between showers, and the next hour to carpet the ground, we have Pansy Lutea D. Massiffs and the well-known Cliveden Yellow. Lutea D. Massiffs is much to be preferred of the two, being a richer and more massive flower, and equally hardy and productive. Passing from those Pansies whose chief merits recommend them for bedding or ribboning purposes, I shall now crave the attention of the reader while expounding some of the leading cultural requirements of a collection of sorts.

So far as my experience goes, the Pansy is most at home in a situation where it is shielded from the blaze of the mid-day sun—sheltered from cutting winds, at the same time out of the shade or drip of trees. The ground should be properly trenched and drained, with plenty of old cow-manure incorporated with the soil; and should the soil be stiff and heavy, better allow a moderate proportion of sharp river-sand to be trenched in with the manure in October, and have the beds again deeply forked over just before planting at the beginning of March following. The beginning of October is perhaps the best time to plant out; but where the beds have not been prepared as described on damp tenacious ground, it is preferable to leave the planting to spring, Meantime select the strongest plants out of the cutting-bed, raising them carefully, with all the soil adhering to the roots that will adhere to them. Put those into pots of from 3 to 4 inches diameter, according to size of plant, using soil composed of two parts loam, and the other two parts equal sand, leaf-mould, and well-reduced cow or stable manure. Plunge the pots in coal-ashes, in a cold frame or in the most sheltered nook, and shade in sunshine for the first few days succeeding the potting. Attend to water when required, and this, if possible, on the mornings of what

Digitized by Google

promises to be followed by a sunny day. Expose the plants as soon as the weak autumn sun ceases to make them flag, and only have recourse to mats as shelter in severe weather in winter.

Planting.—The beds should be 4 feet broad, with narrow footpaths between them, and the plants put in at 1 foot apart both ways. This leaves a margin of 6 inches on each of the edges of the bed after planting four rows of plants. Of course, it is understood that the beds have been nicely raked level, and the lines drawn before planting, and the beds neatly raked, as well as edged, after planting. Water them, should the balls be dry, or the beds, when planting, and continue to administer in this way to their wants in hot, rainless weather. As the plants advance in growth, they will be benefited by putting a neat stake to each leader. This will prevent wind breaking them.

Should large blooms be wanted, it is important to regulate and thin out useless weak growths, as well as premature flowers, at the same time taking advantage of all stock-shoots of the rarer varieties to make cuttings of. Those root readily when taken while yet young and tender, and make sturdy plants by the following autumn. But I may as well say a few words about cuttings before proceeding further, for the benefit of beginners. The best parts of the plant for cuttings are those weakish shoots which proceed from the bottom of the main stem of the plant. These are cut clean away without hurt to the parent stem. The lower leaves ought to be cut clean away from those growths half up their entire length. Insert these cuttings into boxes furnished with good drainage, in a mixture of sand, leaf-mould, and loam, in equal parts, well mingled together. Put the cuttings in lines about 2 inches apart, and press the soil moderately light in the performance. Moisten the soil through a fine rose over the cuttings, and cover with a hand-glass, or put into a cold frame; and failing having either, select a spot properly secure from withering draughts, which is the next best place. But under either conditions, the cuttings should be temporarily shaded from the direct glare of the sun, until all danger of flagging is past.

Propagation from Seed.—This may be done at any time from February to September. All that is required is to have the young plants some size, that they are not lost in winter, from being too weak to combat frost and other changes. Sow the seed thinly in boxes in rather rich light soil. Keep them somewhat in the shade from the time they germinate until the second pair of leaves are in a great measure expanded, then prick them off into lines in boxes. Their subsequent wants are nearly the same as recommended for cuttings, and therefore require no further comment.

Digitized by Google

"*Fancy Pansies.*"—Those are a magnificent section of the genus; as a rule, more vigorous than the "show" varieties, and I have found them unsurpassed by any other plant for bedding when managed properly. A good situation for them is where they are screened from the sun until afternoon, the beds well manured, and wrought to a pulverised condition on the surface. Plant in lines 10 inches each way. Peg down the stems in all directions, with the object of covering all the naked parts as soon as attainable. Pinch out the first set of flowers whenever they can be determined as flowers. This will stimulate the plants to a degree scarcely conceivable by those who have not experienced the result. Continue to remove the flowers if desirable, until flowers are wanted. A month is quite sufficient to cover the bed with blossoms after removing those formed, and in the end the bed will be all the more a good one.

I shall conclude by noting a select list of the finest of both sections:—

SHOW PANSIES.

New Sorts of 1871-72.—Cyril is a white self of the first order; Miss Adamson, clear white, with a binding of blush purple; Mabel, creamy white, bounded by bluish purple, dense blotch; William Young, yellow, bounded by a broad purple belting, shaded yellow; Captain Sheriff, solid golden yellow, belted bronze purple; W. Forbes, splendid dark self, very distinct, of excellent substance and form; Yellow Queen, a handsome bright-yellow self.

SELFS.

Older Sorts.—Alexander M'Nab, an old dark self, but still one of the finest; Cherub, splendid yellow; Count Bismark is solid, and has the appearance of a circle of real glossy black velvet, markedly striking; George Keith, a charming dark self; Snowdrop, well named for its purity, a white self, with large dense blotch.

Yellow Grounds.—De Foe, yellow, bound with a narrow maroon band, extra; John Downie, rich golden, "belted with bright reddish bronze," extra; John Currie, "yellow medium maroon belting, large and well-defined blotch;" Miss Isa Clark, white, with a belting of brisk purple; Oriel, good dense yellow, bound with light purple.

White Grounds.—Alice Downie, creamy white, bound with rich purple, extra; Bonny Jean, solid white, belted purple; Jessie Laird, cream, bound with deep purple, fine; Lavinia, "white and light purple;" Miss Addison, white ground, surrounded with light purple, of handsome form and texture.

"FANCIES" OF 1872.

There is no risk attending a selection of any of the following without more ado. Most of them have figured frequently in the stands in the "winter garden" this summer, when they were admired by all who saw them:—

Agnes Laird, Alexander Crombie, Alexander Forbes, Buttercup, David Syme, George Whitehead, Lady Ross, Stephen Nairn, Thomas Nicol.

Older Sorts.—David Thomson has been rather a shy flowerer, I am told; but this season such could not be said. It is one of the very first of first-class flowers; ground yellow, with a deep claret velvet blotch, upper petal edged rich claret. Mrs D. Mitchell, white, black blotch, upper petal bluish claret, laced white; William Baird, light violet purple, margined white, one of the first; Uncle Andrew, brilliant yellow, deep blackish blotch, marked rich bronze crimson, in the style of D. Smith, but showing brighter colours, excel-

Digitized by Google

lent; Alice Laird, straw, margined white, extra; Daisy, pretty straw, with large purple blotch; Duncan Clark, lilac, French white edging; Figaro, brisk purple violet, purple side and under petals laced white, good; Mrs Laird, lemon-yellow veined and brushed, purple glossy dense blotch, beautiful; Mrs Hammond, violet and crimson, pure white brow, distinct and beautiful; Prince Leon, yellow, large dark blotch; Striped Queen, striped pale blue, pretty and distinct.

The "fanciers" of this class of Pansy may look out next season for something really fine in the varieties that will appear with numerous certificates awarded them. They certainly were the loveliest blooms I ever saw; but I had not the opportunity of noting their colours. A. Kerr.

SUCCESSFUL TREATMENT OF MILDEW ON VINES.

Assuming perfect knowledge of the fact that it takes three years (?) to produce moderately good Grapes on healthy Vines, I will state my successful treatment of an old vinery, by which not only was a stubborn case of mildew cured, but Grapes were produced the third year which won the first prize at the Carmarthen Flower Show—the best show in a district some eighty miles in extent. Three years ago, in the autumn, I took charge of three houses, in one of which the Vines were very badly affected with mildew of long standing: they bore no fruit, and their wood was very badly ripened. Taking off the poor soil of the outer border to the depth of 6 to 8 inches, and exposing, but carefully preserving, the young roots, a mixture of good loam and dung about 8 inches thick was applied to the young roots, which were then left to the chances of winter. In the spring 6 or 8 inches of half-rotten stable-manure were added to the outer border, and after being pruned down rather closely the vinery was painted all over with the usual composition. Stimulated by the generous heat of the border, there was an early but weak crop of young wood. Soon after, noticing some vigorous young shoots at the bottom of the Vines, I guessed them to arise from the new soil, and so began to cultivate them as new bearing-rods, one rod to each Vine. Then the mildew broke out afresh; and seeing there was to be no crop that year, the house was thrown completely open, sufficient heat was given, and the young rods were carefully attended to. In the autumn the old rods were cut off close to the new ones, which were cut half-way back, according to strength. The second spring the young wood broke out very strongly. Heat and moisture were carefully regulated till the fruit was set, when the mildew broke out as violently as ever. I dusted the Vines, berries and all, with flour of sulphur, painted the pipes with a mixture of sulphur and quicklime, gave extra heat and plenty of air. Under this treatment the mildew succumbed, and only two bunches of fruit were lost. The others ripened off very fairly. By autumn the young rods had filled the house with strong,

Digitized by Google

young, well-ripened wood. In the winter they had their usual pruning and dressing with the composition. In the third spring I started rather early—say the 1st of February;—they broke vigorous and strong, filling high from top to bottom, and showing a large crop. The old enemy, mildew, had given in also, and I had the satisfaction of seeing large fruit, both in berry and bunch. As before stated, one bunch of white took first prize at Carmarthen Show, and the blacks took second prize. In the other houses the border was inside, and as I planted new Vines and made a fresh start, there was no mildew to fight with; but similar treatment to that already described produced equally good results. The house affected with mildew was 40 feet long by 14 feet wide. A. Fry.

Carmarthen.

A FEW NOTES ON THE BEDDING-OUT AT THE CRYSTAL PALACE.

On entering the Palace-grounds from the railway station, the first object which attracts the attention of the visitor is a very tall flagstaff, surrounded with two rows of ornamental iron pillars, all connected together with a kind of lattice-work arches. A considerable space of ground is enclosed within these pillars, having the flagstaff in the centre, and six large flower-beds round it in sunk panels, and surrounded with grass. They are planted in pairs; two have centres of Geranium Christine, then two rows of Beet, and edged with Mangles's variegated Geranium; other two have the centres of a scarlet Geranium, then two rows of yellow Calceolaria, edged with purple King Verbena; and the remaining two have centres of a cerise-flowered Geranium, then two rows of Iresine Lindenii, edged with two rows of Golden-feather Pyrethrum. This flagstaff, &c., stands on a mound, with the ground sloping gently away in all directions. Immediately outside of the pillars is a border about 12 feet wide, planted as follows:—A series of diamond-shaped panels are continued along the centre of the border, all the way round, forming a chain. They are alternately planted with Coleus Verschaffeltii and Crystal Palace Gem Geranium; then round the Geranium panels are two rows of Coleus, and round the Coleus panels are two rows of Flower of Spring Geraniums. The half-diamond pieces at back of the border are planted with Geranium Christine and Crystal Palace Scarlet alternately, while the corresponding half-diamonds at front are planted with Lobelia speciosa, a row of Alternanthera being carried along in front or the Lobelia, and finished off with an edging of Echeveria glauca. This border was well filled up, and looked very pleasing indeed. A verge of grass runs along this border, then a broad walk, which is again succeeded by another sloping border about the same width, but planted entirely with Roses. Then follows a wide stretch of grass, still sloping, which is divided into six pieces by curved walks leading into the flagstaff. A series of beds is continued round this grass, a short distance from the walk which bounds it, chiefly circular, except at the corners, where they are triangular in form.

As some of these beds were very pretty and effective, I shall just enumerate a few of the best. The beds along the curved walks leading into the centre were generally planted in pairs to match. One pair with C. P. Gem Geranium edged with I. Lindenii; another pair with Christine, two rows of Coleus V.

Digitized by Google

round it, and edged with a variegated Geranium with pink flowers. Again a pair with Vesuvius Geranium, edged with Lady Plymouth Geranium. A large triangular bed is filled with Verbena venosa and Cineraria maritima mixed together, which looks very well. A bed of Phlox Drummondii, and another of mixed Petunias, looks very pretty, especially the latter. Another triangular bed has the centre of a light-crimson Geranium, then three rows of a dark-crimson Geranium, followed with three rows of Christine Geranium, and edged with Nepeta teucrifolia. One bed is filled with Tropœolum Cooperii edged with Geranium C. P. Gem, and another with a dark-flowered dwarf Tropœolum —a good companion to Cooperii—edged with C. P. Gem Geranium also. A splendid bed of Geranium Vesuvius, edged with two rows of Pyrethrum G. Feather. There was scarcely a leaf of the Geraniums to be seen in this bed for flowers. It is by far the best Scarlet Geranium in the grounds—I might almost add, in cultivation.

Another bed, planted with variegated Geraniums and Verbena venosa would have looked well, but in this case the Venosa has smothered up the Geranium altogether, but makes a nice bed still. A bed which is filled with double-flowered Zinnias, and edged with Iresine Lindenii, has a very telling effect—the Zinnias having such depth of colour, and in great variety. This would make a fine plant for back lines in ribbon-borders, or suchlike. Next follow two very pretty beds, one filled with I. Lindenii in centre, then two rows of Centaurea, and edged with a dark bronze-leaved Geranium ; and the other Tropœolum Cooperii, edged with Mesembryanthemum cordifolium, var. A large corner-bed is filled with Pelargonium Lady Mary Fox, a row of Lady Plymouth Geranium, and edged with blue Lobelia. This seems to be a very fine bedding Pelargonium, dwarf in habit, and very free-flowering. A very telling bed has F. of Spring Geranium and Ageratum Imperial Blue mixed together.

There is also a bed of mixed Lantanas, edged with Cuphea, which makes a good variety. The Lantanas were blooming very profusely. This would be a fine plant for cutting from when flowers are in great demand. It was here in a very exposed position, and, I daresay, would do very well in most places. Another triangular bed is filled with Christine, two rows of Dwarf Ageratum, and edged with Mangles's variegated.

At the junction of three walks is a triangular piece of grass, with a specimen Wellingtonia in the centre, and a bed at each corner, which are planted all alike. A scarlet Geranium in centre, two rows of Calceolaria, and two of Purple King Verbena.

The great terrace in front of the Palace itself is divided into six by-walks leading from the main-terrace walk into the building. A very wide and straight walk leads to the main entrance in the centre; the walk on each side of the centre curves inwards. The divisions are thus unequal in shape and size, but each half being a counterpart of the other. In the centre of each division is an ornamental fountain, like a miniature lake in size. The jet-pipes are just a little above the surface of the water, and when playing are crossing and mingling together in every conceivable fashion, some ascending to a great height. Round each of the two centre fountains are four groups of bronze figures,—those round one representing the Nile, the Amazon, the Ganges, and the Thames; while those round the other are symbolical of the four great oceans—the Atlantic, the Pacific, the Arctic, and the Indian. Vases filled with flowers are dotted at intervals round the other fountains. Along the side of the two centre divisions, next the main-terrace walk, are a series of long, square, and round beds alternating. The square ones are all planted with four rows of a

Digitized by Google

light Scarlet Geranium in centre, then two rows round of Christine, and edged with Purple King Verbena, two rows. The circles have a centre of Stella Geranium, a line of Mme. Vaucher, and two rows of Pyrethrum G. Feather. On each side of the centre walk, and continued round the side next the Palace, is a row of Araucarias and vases on high pedestals. Each of these forms the centre of a flower-bed. Round the trees is planted Blue Lobelia, edged with Cerastium tomentosum; and round the vases, which stand in square beds, of which there are nine on each side, the centre and two end ones have four rows of Christine Geranium, edged with a dwarf variegated Geranium. One on each side of centre is filled with Stella, edged with variegated Geranium; then other two of a lighter Scarlet Geranium; and the remaining two again with Stella, all edged with variegated Geranium. There is a band of grass round the base of trees, and also the vases, so that these beds are just a ring of flowers surrounding them. The next two divisions have a line of colossal bronze statues along three sides, that next the Palace not having any. In some cases the pedestals are not yet occupied, but all are in position. Between each two pedestals is a long square bed, mostly filled with Geraniums of sorts, but calling for no special remark. There is one very pretty bed on each side planted thus: an edging of Echeveria glauca, then a row of Alternanthera; the bed is filled up with Golden Feather Pyrethrum; a band of Alternanthera, about 8 inches wide, in a waving line terminating in a circle at each end, is down the centre of the bed, while a round patch of Lobelia in each circle, and in each bend of the line, completes a very charming bed. These beds are all on the level; but the central parts of these divisions, including the fountains, are below the level, the ground sloping gently down. At the bottom of the slope, and continued all the way round, is a chain of beds, one square bed and two round beds alternating. The squares have a centre of yellow Calceolaria, with two lines of Scarlet Geranium. The circles have centres of French Marigold, with Christine Geranium round, the whole being edged with Alyssum. Narrow bands of Ageratum connect the beds to each other. I do not mean to say anything about the Palace itself; doubtless many of your readers will have seen it for themselves. Those who have not would derive very little satisfaction from a description, even though it were done a vast deal better than I am capable of. I hope, however, a few useful hints may be gleaned from the above remarks, which may be of service at a future time. J. G.

COLSTON BASSET, GOLDEN QUEEN, AND BELLAMORE HYBRID MELONS.

After two years' experience of the first-named Melon, we have come to the conclusion that if we were restricted to one variety we should make choice of it. It has more good qualities than any other we have ever grown. The constitution of the plant is unusually sound and vigorous. It bears exceedingly free; does not grow too large for dessert appearances; is handsome and deliciously flavoured. It is not by any means a Melon that comes so early to maturity as many others, but it keeps longer in the fruit-room in good condition than any of the numerous sorts we have grown.

Golden Queen is a large handsome Melon, well deserving in appearance the name it bears. It has a tender high-flavoured flesh, and is altogether a first-rate Melon, but it does not raise a plant of so hardy a constitution as the first-named.

Bellamore Hybrid we think very little of. In shape it resembles an oblong Vegetable Marrow; its flavour quite second-rate. It bears freely, and may be classed among the earlies. D. T.

Digitized by Google

LOCAL NOTES ON RARE OR UNCOMMON WILD PLANTS.

NO. III.—TWEEDSIDE, FROM KELSO DOWNWARDS.

ALTHOUGH the scenery is not so fine as that up the river, still it is a beautiful district; almost every place passed by the Tweed between here and the sea is a place of note in Border history. And to use the words of one of our greatest botanists, Sir J. E. Smith, "A plant gathered in a celebrated or delightful spot is like the hair of a friend, more dear to memory than even a portrait, because it excites the imagination without presuming to fill it."

Before leaving Kelso I may mention the following plants which should have been in the first paper; viz., Lepidium draba, covering a large space below the bridge, where it must have grown for many years—a solitary plant of Helminthia echioides and Ænothera rosea, naturalised in cultivated ground and on the river-side.

At Pinnaclehill on the south side of the Tweed, Valeriana pyrenaica grows on the banks, while under the dense shade of the trees the graceful Poa nemoralis, Bromus asper, with its elegant drooping panicle, Brachypodium sylvaticum, and Milium effusum, are plentiful. These are all very ornamental grasses, and are to be found in many of the woods in the district. A short distance to the east is Wooden Linn, said to have been the habitat of Asplenium germanicum; but if this rare little fern still grows in the vicinity of Kelso, it will have to be looked for on more open rocks, as the Linn is too much shaded. Makerston is a far more likely place, on the same rocks, where the Forked Spleenwort occurs. However, the Linn is well worth visiting. The Sweet Woodruff and lesser Periwinkle are growing in abundance, besides many other plants that love the shade. On Wooden "anna" is a large patch of a spotted Mimulus (guttatus?) growing amongst gravel, with its roots in the water. In such a place the Mimulus grows luxuriantly, which confirms the remarks of G. Dawson (p. 316). In addition to the plants mentioned by him as growing along with it, the Forget-me-nots would have a fine effect. At Rosebank we find again the great Leopard's-bane in plenty, along with Lathrea squamaria. Amongst others that grow here there are Draba muralis, Malua moschata (a fine border plant), Carduus marianus, Symphytum officinale (purple var.), Fedia olitoria, &c. We now come to Hendersyde Park, the fine seat of G. Waldie Griffith, Esq., which is famed for its large and valuable collection of books, paintings, statuary, &c. On the river-side here we find Clinopodium vulgare, Convolvulus sepium, Spergularia rubra, Crepas paludosa, and Carex remota. In the woods the trailing St John's Wort, Epipactis latifolia, and Petasites albus. On the haugh-land I have observed Festuca loliacea and F. pratensis, with intermediate forms, which looks very like as if they were the same species. On the right bank below Sprouston, Vicia lathyroides, Galium boreale, Allium oleracea, and Atriplex erecta are plentiful. Passing the mouth of the Eden, we come to Edenhall, the finely situated new residence of James Moffatt, Esq. Ranunculus hirsutus is very abundant here, likewise R. parvulus (L.), which are only starved plants of hirsutus. Also Sium angustifolium, Carum carui, Dipsacus Fullonum, Matricaria chamomilla, Anthemis arvensis, Alopecurus arvensis, Apera Spica-venti, and four species of Crepis (Barkhausia) not described in the British Floras. Owing to the parks being lately sown, these have probably been introduced along with the grass-seeds. On the island at Lochton, Sanguisorba officinalis grows sparingly, and on the banks. Œnanthe crocata, Scabiosa columbaria, and the beautiful Epilobium angustifolium: this is a grand plant for semi-wild places, but scarcely suited for herbaceous borders, on account of its

Digitized by Google

creeping roots. I have found Campanula persicifolia in a plantation here, apparently wild. Linaria spuria has been found at Redden, on the opposite side of the river. On Birgham Haugh may be found Euphorbia esula and Eupatorium cannabinum. Nasturtium sylvestre is frequently met with on the river-side from here to within three miles of Berwick. Astragalus glycophyllus, Henbane, and Saponaria officinalis are to be found growing amongst the ruins of Wark Castle. On the side of a burn at Learmouth, Allium arenarium occurs sparingly. In Learmouth bogs, not many years since, Cladium mariscus, Carex filiforme, and Lastrea thelypteris were plentiful; but owing to drainage and the encroachment of the plough they will now be sought for in vain. Growing about the margin of Lithtillum Loch are Alisma ranunculoides, Hippuris vulgaris, Œnanthe Phellandrium, and Rumex maritimus: this dock is also plentiful at Pallinsburn. At the Hirsel, the finely-wooded seat of the Earl of Home, we find Sison amomum, Listera ovata, Hieracium aurantiacum, and Lactuca muralis. This Lettuce is abundant and truly wild here, although it is not noted either in the 'Flora of Berwick' or the 'Botany of the Eastern Borders;' and according to the 'New Flora of Northumberland and Durham' it stops short in Tyneland. In the centre of the garden there is a noble specimen of the Tulip-tree (Liriodendron tulipifera), the girth at 2 feet from the ground being 17 ft. 10 in. On a gravelly place formed by a bend in the river, between Cornhill and Coldstream, the following plants occur: Thlaspi arvense, Nasturtium terrestre, Iberis amara, Senecia viscosus, &c. Lactuca virosa is abundant at Lennel, where it often attains the height of 6 or 8 feet. On the opposite bank, Hypericum calycinum grows luxuriantly. It was planted there about eighty years ago.

Passing Tillmouth, Milne-Graden, and Ladykirk, where we find many of the plants mentioned above, we come to Norham and its massive old castle, nearly opposite which is Holywell Haugh, where we find Pulicaria dysenterica. This haugh was the place of meeting for trying the claims of the various competitors for the Scottish crown (1291). And still onwards, past Horncliffe and Paxton, to the mouth of the Whiteadder, where we again find the rare Allium arenarium in plenty, and Anacharis alsinastrum, abundant both in the Tweed and Whiteadder. I have not observed it in the Tweed beyond the influence of the tide. This interesting plant was first found in Britain by Dr Johnston of Berwick, in August 1842, at Dunse Castle. In 1847 it was found in Leicestershire. It was not observed in the Whiteadder till the next year. Now it is scattered over the whole country in such great abundance that it impedes the navigation in some rivers and canals. It could not be by seed that this plant has been so rapidly spread, as we have only the fertile plant in this country; but by whatever means it is distributed, its rapid increase is of great interest, both in a scientific and economic point of view. On the rocks at Ord, on the opposite side of the river, Vicia sylvatica occurs plentifully. This is a splendid plant when growing in such a place, covered with its numerous clusters of pale-bluish flowers. Between the mouth of the Whiteadder and Berwick, along with many others only to be found near the sea, I have found the following: Spergularia marina, Aster trifolium, Glaux maritima, Atriplex rosea, Juncus Gerardi, Scirpex maritimus, and Glyceria maritima.

Growing in the river, here and there, along its whole course, are many forms of Ranunculus aquatilis, a grand subject for species-makers; also Potamogeton lucens, P. pusillus, P. pectinatus, Chara flexilis, &c.

KELSO. A. B.

[We think the specimen sent is Mimulus guttatus.—ED.]

Digitized by Google

AMERICAN ROSE POTATOES.

I OBSERVE in your September impression the experience of a correspondent regarding the above Potato. It appears, from his and other accounts, that it has a tendency to die off in the growing season. I got a small quantity of it last spring, as much for trial as anything else, part of which I inserted in whole sets into boxes filled with leaf-soil and loam, which I placed in a mild temperature close to the glass till they had shoots 2 to 3 inches long, which was about 20th April; I then selected the best piece of an early border I had, and planted the tubers—with a portion of the soil from the boxes adhering to each—8 inches apart in the rows, and 20 inches between the rows. They suffered little or no check from the transplanting, and when they were high enough for earthing I applied a sprinkling of the native guano along the rows; they then grew vigorously till fit for table, without one going off. The first of them I lifted on 19th June, but they might have been lifted a week sooner as far as size was concerned, had they been required. As compared with the above plantation, I may also mention that I planted some at once out of the seed-bag which had begun to start at the eyes, but they did not do nearly so well, and some sets died off; but here, however, the soil may have been faulty, it being of an irony nature. Referring to the American Rose as an early Potato, it is likely to hold some prominence; but we hear it objected to on account of its watery flavour; but if cooked according to the directions of "Gardener's Wife," as given in a back number of the 'Gardener,' I believe it could be to some extent improved. D. MACKIE.

ISLAY, *10th September.*

MY experience with the above Potato is somewhat similar to that of your correspondent "J. G." in the September No. of the 'Gardener,' at page 419. Last year I cut four Potatoes (which would not weigh more than 2 lb.) into as many sets as I possibly could, and the yield was 66 lb. of good sound Potatoes, quite free from disease, several of the tubers weighing over 15 oz. They were grown on poor sandy soil that had been cropped three years without any manure: had the soil been in good condition, no doubt the produce would have been much greater. As I found it to be such a prolific variety, I saved nearly the whole of them for planting the following spring. But this season the result has not been so good, a great many of them dying off, and at lifting-time I found 50 per cent diseased, the sound ones upon the whole not so large. Nevertheless, as this has been such an unfavourable season for Potatoes, I shall give it another trial.

In my opinion it is an excellent sort for the servants' hall, but will not do for the parlour-table on account of its being pink in its flesh, though I find the flavour to be very good.

I may state that I procured direct from the nursery 1 peck of 14 lb. of Veitch's Ashleaf Kidney Potato, which I planted with eleven other sorts, and it was the only one that escaped the disease, while some of the other varieties were really not worth taking up. H. MASON.

THE GARDENS, BISBROOK HALL,
UPPINGHAM.

[The American Rose escaped disease with us in a quarter where some half-dozen other varieties were nearly totally destroyed.—ED.]

Digitized by Google

GRAPES AT DONISLA.

Mr Raffin has erected at his mansion-house, Newington Road, Edinburgh, two extensive ranges of glass for the cultivation of the Grape Vine. Through the kindness of Mr Shaw, the able and enthusiastic grower, we had the pleasure the other day of inspecting the Grapes; and here we saw a fine collection of all the leading sorts, Muscats, Hamburgs, Lady Downes, &c., houses being devoted to each of the three varieties named. But what pleased us most of all was Gros Coleman: for compactness of bunch, size and evenness of berry, we have never seen anything to beat it: what a grand appearance a dish of it must have on the dinner-table! For a late Grape we consider this second to none. Golden Champion was also here, as large in bunch and berry as we have yet seen this fine Grape; but we fear it will not colour well this cloudy season,—a complaint, we expect, will be pretty general among white Grapes, especially Muscats.

On entering another house—a mixed collection of late sorts—our attention was immediately arrested by four huge bunches of Barbarossa, which, when fully swollen, should weigh at least 10 pounds each—an enormously heavy crop, we thought, for a Vine so young; but Mr Shaw informed us he did not mind sacrificing the Vine, it being a supernumerary. We understand these Vines were purchased from Mr Thomson, Clovenfords, and planted in March 1871,—certainly showing evidence of skilful cultivation in all stages of their growth.

August 24th. M. J. K.

A HOLIDAY IN THE ISLE OF MAN.

Having decided to have a fortnight's holiday, the question which naturally arose was, Where shall we go? Among gardeners, we believe, the approved course is to make a pilgrimage from one gardening establishment to another, with the ostensible purpose, it is presumed, of picking up professional information of some kind or other; but though we have "done" it in this way more than once, we have generally returned in a condition which led us to entertain serious doubts whether, after all, we had had a *holiday*, and with a perfectly satisfied conviction that there was "no place like home." A holiday, we think, ought to afford a contrast to the general routine of daily life to be enjoyable; and as the gardener's occupation affords him ample scope for the exercise of both body and mind every day in the year, it follows that a little indolence is the proper corrective.

Considerations of this kind led us, therefore, to think that a study of the Scandinavian institutions of the Isle of Man would be a sufficiently decided change; and having persuaded certain "encumbrances" into the same way of thinking, and also demonstrated indisputably that sea-sickness was not to be anticipated, we found ourselves, on a certain gusty day in August, on board one of the well-equipped steamers which ply between Liverpool and Douglas, and pitching uneasily down the Mersey, in a fashion not calculated to sustain any amount of confidence in the "sickness" theory which we had previously elaborated with such pains. Recrimination, however, became a physical impossibility at an early stage of the journey, as it would certainly have been expended on a subject profoundly indifferent to far more momentous considerations, for the time being. Some sailed individual has said that he who wishes to know what a rough passage, in a condensed form, means, must go from Liverpool to Dublin or the Isle of Man. We did not "wish" to know; but

Digitized by Google

were destined, nevertheless, together with some eight hundred other unfortunates, to have a very tolerable experience in the matter, during nearly one half of the twenty-four hours the Mona's Queen was engaged in getting over the usual five hours' passage; and when the smooth waters of Douglas Bay restored us to our feet and an interest in worldly matters generally, we could respond emphatically to the philosophical remark of a party who had occupied a recumbent position at our feet during the voyage—that he would "deserve all the pleasure he could after this," expressing at the same time his decided intention of having what he called "a regular tuck-in" as soon as he landed—by way of restoring ballast, we suppose. In fact, the disposition to "tuck-in" developed itself in such an aggravated form in the case of ourselves and certain other parties and small people, that it became clearly evident, at an early stage of the proceedings, that any economical speculations we might have in view in visiting the "untaxed island" was going to be a lamentable failure.

As affording a contrast to our daily horticultural experiences, we were fortunate in procuring lodgings of an appropriate description. The house (a two-storey one) was clothed in front with Fuchsias—Riccartonii—up to the roof. The landlord had just lopped off the lower limbs with a bill-hook to let the light into the windows; but immense tussocks of floral beauty, that would have dwarfed the grand specimens we are accustomed to see at our flower-shows, still hung over from the eaves of the house. The back premises—a piece of ground devoted ostensibly to vegetable culture, but occupied for the time being by a select and vigorous family of natives—were nearly fenced round with Fuchsias as high as ordinary garden-walls, and literally laden with bloom. The flower-garden proper was a tangled thicket of Laurestinus, giant Hydrangeas, and other things, which showed by their luxuriance how the mild insular climate and sea-breeze suited them. Our nearest neighbours, with whom we fraternised occasionally, were of Ishmaelitic extraction, in the astrological line, and "dwelt in tents," of a primitive description, behind a turf fence just across the way. That they were largely patronised by the credulous, was evident from the fact that the donkeys from the shore invariably introduced their riders to the encampment in the first instance, if left to their own will. We found this out in the course of our experience as occasional pilot to a small equestrian company from the shore of an evening.

The Isle of Man is about thirty miles long, and from nine to twelve miles broad; and the Manx claim for it a climate equal, if not superior, to the Isle of Wight or the warmer parts of Cornwall. Snow never lies—scarcely even on the highlands—and the frost is seldom so severe as to arrest vegetation. The high mean temperature of the island is attributed to its position in regard to the Gulf Stream, which bathes both its shores; and its extraordinary and increasing popularity as an autumn resort for health and pleasure seekers is evinced by the thousands of visitors who pour into Douglas every day, to spend their money, and leave again before the winter. That the climate is mild, as compared to the neighbouring Lancashire coast, or indeed any part of England we are acquainted with, is apparent on all sides. Fuchsias take the place of common shrubs, and are perfectly rampant in every cottage-garden, retaining their foliage nearly all the year round. We noticed specimens growing in the open 14 or 15 feet high, and as much through; and few sights are so magnificent in the plant way as a Riccartonii Fuchsia of such dimensions, and covered to the ground with flowers. Large Myrtles, greenhouse Veronicas, shrubby Calceolarias, and other old greenhouse acquaintances, make hardy shrubs, but are chiefly found in the gardens of the cottagers; for there is a dearth

Digitized by Google

of aristocracy in the Island, and horticulture is at a low ebb. The nunnery, the Governor's residence, and one or two of the Deempster's places, are the only establishments worth mentioning at all. That sub-tropical gardening, in the sheltered nooks of the Island, would be a success, we have no doubt. We were assured by a gentleman from Ramsay that in a garden in that neighbourhood the Musa had been out all the year for some time, and this is only about fifty miles to the south-west of Dumfries. What is lacking in horticultural interest is, however, made up in the natural scenery, which is of a highly romantic description, only marred by the almost entire absence of trees. The Island is also studded with relics interesting to antiquarians, and almost every spot of ground is hallowed by tradition of some kind or other. For these matters we must, however, refer readers to the guide-books; but no one should leave the Island without visiting the "Tynwald Hill," one of the most ancient and interesting, not to say queerest, antiquities in Great Britain. This is a mound of earth, about 250 feet in circumference at the base, and consisting of four circular terraces, one above another, in a pyramidical form, with a flagstaff at the top. It is said to have been originally built of soil from all the parishes in the Island, and is still kept in good order, and covered with fine turf. The "Tynwald" is to the Manxman what the British Houses of Parliament are to Englishmen; for from its top have been proclaimed the laws of Man for more than a thousand years, and no law is valid that is not, even at this day. Not far from the mound is a handsome church, which represents Westminster Abbey.

No one who visits the Island in August can fail being struck with the landscape as he approaches the land. The uncultivated tracts, which are by far the most extensive, are generally clothed with furze or a dense carpet of the pink Heath—the common heather being almost entirely absent—Erica cinerea coccinea, if we are not mistaken. This Heath covers the slopes for miles, in some places, down to the water's edge, with a purply-pink shade scarcely less bright than that of "Christine" Geranium, and here and there dotted with a patch of Corn or some other crop—the whole having quite a unique, rich, and pleasing effect, such as we have seldom seen. One of the most attractive resorts in the neighbourhood of Douglas, or, indeed, in the Island, is Glen Helen. Between twenty and thirty years ago this was a tortuous and bare precipitous glen, when the proprietor conceived the happy idea of planting the sides with trees, chiefly Larch and Spruce. About a million trees were planted at the time, which have grown, and now clothe the steep hillsides, up, up, until the view is lost against the distant sky-line, forming one of the most charming bits of sub-Alpine scenery that can be imagined. A handsome Swiss cottage at the entrance of the glen adds to the effect, and a rustic path along the river-side leads the tourist to the romantic waterfalls, and through the glen, forming a pleasant afternoon ramble. Here the Royal Fern, Osmunda regalis, is found growing in abundance, attaining a height of 5 feet sometimes; but as there appeared to be no restrictions against amateur botanists carrying away rooted specimens of this noble native at their pleasure, it is likely enough to become extinct in the Island before long.

From Douglas to the ruined St Trinion's Church (which, through the malice of some mischievous goblin, no Manxman has ever been able to put a roof on), thence to the quaint old fishing-town of Peel, on the west side of the Island, and Peel Castle, celebrated in 'Peveril of the Peak,' now an extensive and highly interesting ruin, and back again *vid* Glen Helen, is just an easy day's journey by conveyance—for as yet there are no railways in Man, though one is in progress. Another favourite excursion of botanists and sightseers is to the top of Sneafell.

Digitized by Google

the highest mountain in the Island, rising 2000 feet above the sea-level. From its top, on a clear day, the eye can take in an area stretching from Anglesea in Wales to the shores of Galloway and Dumfriesshire, and from the coasts of Lancashire and Westmoreland to the Wicklow mountains in Ireland; while the length and breadth of "Mona's Isle" is spread like a magnificent panorama at his feet. Seaward the eye may note the numerous steamers and sailing vessels as they go and come, and which thicken away towards the estuary of the Mersey. That streak of smoke which we see far away to the north, seemingly against the horizon, is from the Liverpool and Glasgow steamer, just rounding the Mull of Galloway; that, making direct for the Island from the east, is the fleet Barrow boat, now running in connection with the Great Midland system; and that apparently just getting within the shelter of the Calf of Man, is one or other of the powerful Liverpool fleet—her decks crowded with passengers to the tops of her paddle-boxes, and pushing forward to reach the landing-stage before her opponent, whose short three hours' passage commends her to the timid, but does not save them from paying the dreaded "tribute to Neptune." To the west the ocean is dotted with fishing-craft—Peel alone sending out nearly 500 smacks, few of them under fifty tons burthen; and that steamer piloting its way through the fleet is probably an Irish boat from Belfast or Londonderry, all converging towards that common centre of industry and enterprise, Liverpool. From there alone, during this single week, have been shipped nearly fourteen thousand visitors to this little Island; and this goes on, less or more, till late in autumn. Strangers swarm like bees in every by-road and quaint old-fashioned lane in the Island; and instead of Manx you hear only the rude dialects of Yorkshire and Lancashire and the midland counties. Now and then you meet a countryman from the far north, who is bent on carrying out his programme of sightseeing; but the tide sets in from the south principally, owing to the facilities in the way of transit which are furnished from the English coast; but all take themselves off again by November, leaving the Island the lonely and deserted fishing-station it was a hundred years ago, without the excitement of an active smuggling trade, for which it was famous, and remarkably well fitted, with its mysterious caverns and dark rock-bound coast.

Before concluding, we must just mention the splendid hotels around Douglas—generally most romantically situated in their own private grounds. Castle Mona, originally built by the Duke of Athole as a private residence, is the principal one, and more like a palace than a hotel. Surrounded with pleasure-grounds of the most unique and diversified description, smooth lawns, butting and almost inaccessible cliffs, which command a view of Douglas Bay, with all its varied and exciting scenes, it is one of the most delightful spots that can be conceived.

A trip round the Island by steamer—which is the best way to get a good general idea of its aspect—an iron-bound coast, and a passage back to Liverpool over a sea as smooth as an inland lake (this time), closed one of the most enjoyable, and not the least profitable, holidays we have ever experienced.

J. S.

Digitized by Google

NOTES FROM OUR GREENHOUSE.

Towards the latter part of last autumn our cut-flower supply ran short in the way of Geraniums, and to avoid a repetition of the same state of matters this year we resolved to adopt a different mode of culture from that which the plants had been formerly subjected to. Old plants had been allowed to grow on the second or, for aught we know, perhaps the third year, without cutting back or shaking the soil away from the roots, and also trained to long stakes, as one would do with old climbers. A few straggling flowers on unsightly plants, and this only in the brightest time of the summer, were the results of such culture. Defective top-ventilation I found also to be much against a long-continued display of bloom, as illustrated plainly by other subjects side by side with the Geraniums; and every experienced plant-cultivator is aware of the fact that confined damp air is an evil which cannot be too much guarded against. As garden improvements are projected which will involve the removal of the present plant-houses, our only alternative last spring was to do the best we could in the face of existing circumstances. I took what could be got from the old plants of cuttings, struck and grew them on in light turfy loam, a dash of sand, and a sprinkling of crushed bones. No larger than 5- and 6-inch pots were used for the spring-struck cuttings, as I find them to be most useful for cut-flowers when dull weather in autumn sets in. The autumn-struck plants I grew on into 8-inch pots; but, of course, they were a little in advance of the others in the spring. After they had all received the last shift into their respective sizes, and were fairly started, they were placed in as sheltered a place as I could command, but where they also had the benefit of a free circulation of air. When flower-buds began to show freely, I had a little guano mixed with the surface soil to benefit the plants when watered. They were removed to the greenhouse in the end of July, to replace the stage Pelargoniums, then turned out to ripen and dry before cutting them back. Since that time they have flowered well, and this day are bristling with new buds and foliage of a healthy appearance; and I expect, with tolerably clear weather, to gather flowers for a considerable time yet. Among scarlets the freest flowering varieties as house-plants are Faust, Lord Derby, Dr Lindley, Rattiza, Miss Parpit, Marvel, David Syme, Clipper, Alexander Stewart, Lady Constance Grosvenor. Among lighter shades, Governor, Madame Rudersdorf, Conqueror of Europe, Rose Queen, &c.

FUCHSIAS.

We struck about four dozen Fuchsias last spring, which are now doing good service. These were restricted to small pots, as we think

Digitized by Google

there is no gain by shifting late in the season, unless there is suitable convenience to grow them and ripen the wood properly. Large plants are in danger from severe frosts, vermin, &c., where space cannot be afforded them in structures where either of these can be readily excluded. A number of plants ranging from four to seven feet high, we are informed, were eaten down by rats two winters ago, where they were packed in straw in a shed. The following are favourite sorts here, and have flowered well this season: Blue Beauty, Gipsy Queen, Beatrice, Bridesmaid, General Lee, Madame Corneilisson, Princess Alice, Rose of Castile, Senator, Picturata. I find them flower profusely in fibry loam two parts, leaf-soil two parts, with a dash of rough sand and a few crushed bones. They are notably benefited by weak liquid manure. To secure beautiful foliage they ought not, we think, to be exposed to a hot mid-day sun, which can be avoided by artificial shading.

BALSAMS.

Of these noble plants I wish to subscribe a few notes, as we got a very good strain of seed this season. As all florists know, this is an extremely gluttonous subject: soil which we rejected for Geraniums on account of it being too rich, suited admirably for growing them in. As Melons were not wanted till autumn, we took advantage of a few lights of a pit to grow them in. We kept pinching till middle of July, which, along with a regular current of air, maintained a stubby growth. We flowered them in nine-inch pots. They measured on an average two to two and a half feet high, and sixteen to eighteen inches through, and flowered splendidly, and well repaid the little extra attention bestowed on them. One-third of the compost used was decomposed cow-manure. D. M.

ISLAY.

MADRESFIELD COURT GRAPE.

I WAS rather surprised to see in the 'Gardener' for August 1868 Mr Cramb's account of his failure with the above Grape.

Ever since 1869, when I had the privilege of seeing this Grape growing at Madresfield Court, I considered it as easy to grow as a Black Hamburg. Mr Cox had them growing side by side, and the one looked quite as vigorous as the other.

Some weeks ago I paid a visit to Cyfartha Castle, in Glamorganshire, where they grow Grapes extensively and well. Now the Madresfield Court Muscat as grown there was all that could be desired, most beautiful bunches and berries. Mr Bertram, the worthy gardener at Cyfartha, thinks the Madresfield Court a more free grower than the Hamburg. He showed fine bunches of the Grape in

Digitized by Google

question at Cardiff lately; and Mr Cramb, who was one of the judges there, was obliged to give the prize to Madresfield Court instead of to good Hamburgs. See also the fine examples that have been shown at Belfast, Glasgow, &c. Mr Cramb says that the Madresfield Court Grape has not sustained its pretensions. I apprehend he is in error in saying so. I believe it to be the best black Grape out. As regards the spotty gangrene which Mr Cramb says spread rapidly among his berries, the same thing is often seen in Muscat of Alexandria, and notably in Lady Downes seedling. I believe the true cause of it is the want of ventilation, and too much moisture at the time of stoning. I know that will bring it on, and the keeping-it-cool-and-dry practice will stop it. How often has Golden Champion been run down as a bad Grape to grow! If it does spot slightly, what then? Look at the appearance of the bunch and berries, with the superior flavour of the Grape. This ought to insure it a place in every vinery. See the account of the recent fruit-show in Glasgow, where Mr Johnstone and others showed it to perfection. A friend of mine sent me a bud of Golden Champion in 1870. We commenced building vine-houses here in May of that year. Lately, on sending in Golden Champion to the house, my employer asked me what Grape it was. On my informing him, he said "it was a magnificent Grape."

Notwithstanding what Mr Cramb and his Birmingham friends said against Madresfield Court Muscat, I mean to increase my stock of it, and Golden Champion also.

W. HUTCHISON.

THE GARDENS, LELWYNDER COURT,
ABERGAVENNY, 17*th Sept.* 1872.

DUNDEE HORTICULTURAL SHOW.

A SIMPLE mode of protecting fruits from being handled by visitors we observed at the Dundee Horticultural Society's Exhibition held during the first week of September. It seemed in advance of the old rope or "nothing-at-all" system so often seen at fruit-shows. There was a barrier of a few upright stakes with a rail placed along the top of them, and on to this was nailed a width of about 2½ feet of rabbit-proof wire-netting. The whole of the fruit-tables were encased; there was no obstruction to the vision; the fruits remained untouched; the cards were not moved from their position; and I need not add that there were no anxious looks from exhibitors towards their produce, which otherwise might have had rough handling by anxious sightseers when looking eagerly at the cards to see who were the prize-winners. I do not know if protection of this kind is at all generally used, but we know exhibitions where it would remove much anxiety from competitors, and also remove an excuse from non-exhibitors who will not come forward to get their fruits handled and the bloom rubbed off their Grapes.

It appeared to me that whatever the Dundonians undertake they throw their whole energies into the matter to make it a success, and the improvement in their arrangements with fruit exhibitions has made a decided change and advance in the right direction.

M. TEMPLE.

Digitized by Google

AN INGENIOUS MODE OF HEATING.

An amateur friend of mine, a working mechanic, residing in one of the suburbs of Dundee, has in full working order one of the most ingenious and at the same time one of the most effectual methods of heating I have ever seen. The contrivance, if I may use the word, is entirely his own, and the result of a few evenings' study, while seated in front of his fire with his children around him. As I think this invention would be of great value to amateurs who may be in possession of a small greenhouse, and also to those intending to erect one, I will endeavour to give a description of it. My friend's furnace is his kitchen-fire; the grate is one of the kind now in general use—viz., with a boiler on one side of the fireplace and an oven on the other. The ordinary upright bars forming the front of the fireplace are taken out, and a coil of pipes put in horizontally instead, forming a very neat and handy fireplace: this coil is simply a tubular boiler of ½-inch pipes 7 inches high, 8 inches wide, and 10 inches long, with a 2-inch pitch, in all 12 feet of piping. There is a cast-metal pan 10 inches square and 2 inches deep placed on the top of the oven, and into the bottom of it the top or flow-pipe is inserted; another flow-pipe is inserted into it at the back, which goes through the wall and into the hot-water tank for heating the plant-house. The hot-water tank in the house is 6 feet long, 18 inches wide, and 6 inches deep; there is a division up the middle, with a hole in the upper end to allow the water to circulate down the return-side and into the return-pipe, which is the bottom coil of the fireplace. Ordinary 3- or 4-inch pipes would do as well as the tank for heating the house—I mean the one will work equally as well as the other; but the tank is cheapest. The tank is covered with a sheet of iron simply laid on, and forms the bottom of a propagating-bed. The square cast-metal pan alluded to was meant to be the means of securing a greater amount of heat if required; it has a flue underneath to conduct the smoke up the oven chimney. A cover and front were made for the fireplace, making it in all respects like the close kitchen-ranges now so much in use. The house heated by this invention is 11 feet long, 8 feet wide, 8 feet high at back, and 4½ feet high in front, and kept at stove temperature. It is built against the gable of the house immediately behind the fireplace. My friend has a very choice collection of bronze and tricolor Geraniums and several hard-wooded greenhouse-plants in fine condition; but his special favourites for some years have been the Japan Lilies, and particularly Lilium auratum, which he has grown to great perfection. His specimens exhibited at several of the Dundee flower-shows were the wonder and admiration of every one. His invention is now enabling him to get up a choice lot of stove-plants, of which he is very fond, as the heating of the house costs nothing, his guidwife being his involuntary *fireman*.

I am afraid my description will not be fully understood; but, sir, if you think it worth while, and if you can afford to insert a drawing in a future number, my friend is very willing to give a complete drawing of the whole thing, so that all who choose may avail themselves of his invention. John Heath.

Digitized by Google

A FEW WORDS ON TEA-CULTURE IN SOUTHERN BENGAL.

BY A GARDENER.

In January 1871 I accepted an appointment on a Tea estate in Cachar, one of the largest Tea-fields in India.

Much has been written and said upon this subject by people who have had all the advantages of experience, so that I merely wish to convey an idea of what impression was made upon me when I first became interested in the matter. I have often thought if people in England, while drinking the universal beverage, ever condescend to think of the manner in which Tea is made, and the difficulties attendant upon its growth, culture, and manufacture, or the thousands upon thousands of souls employed upon the various gardens in Assam and Cachar. Why, a little village has to be maintained in one garden alone, and its king is the planter. I really fancy there is no one situation which embraces such a multiplicity of trades and professions as that of a Tea-planter, from a doctor to bricklayer, engineer, &c., &c.

Never having been to Assam, I am not in a position to speak of that place, either as to its merits as a Tea-field or otherwise; I must therefore confine my remarks to Cachar alone. There are about ninety gardens in Cachar, varying in extent from 100 to 800 acres of ground under plant, employing on an average one man per acre. These employés are under the strict supervision of Government: an appointed officer called a "protector" is supposed to be their haven of refuge in the event of whatever grievances they may fancy they labour under being not attended to by the planter. It might be generally supposed that labour necessary for the cultivation and manufacture of Tea was done from local sources: this, I am sorry, is not the case: nearly every coolie in Cachar is imported from different parts of India, but principally from the N.W. Provinces; and these men are mostly all under agreements from three to five years, and receiving pay at the rate of from four to five rupees per month, in addition to which they are provided with house-room, blankets, food at a certain price, medical attendance, and a great many privileges and comforts: this of course is necessary, otherwise there would be no inducement for them to leave their own countries; and it is a well-known fact that natives are particularly averse to strange places—so much so that caste is often broken or lost when the would-be traveller leaves his country. Many of them live and die in their own village.

The Tea-land in Cachar is composed principally of Tellahs or (Anglicised) hillocks, but experience has taught most planters by this time that the shrub thrives very much better on flat or a gently undulating lay of land, not too low to be overflooded in the rainy season, and sufficiently high to secure a natural drainage. Most gardens are in close proximity to the hills (the Northern Cachar and the Boobon ranges). This is thought advisable, as where hills are a greater fall of rain is secured. This of course is essentially necessary for the Tea bush.

It is imperative, of course, in the first instance, to clear the ground intended for cultivation. This is done by hill-tribes called Nagas and Kookies, who are wonderfully expert with their dhoa (a sharp half-hatchet, half-knife), felling large trees in a very short space of time; and as the jungles in Cachar abound in Neggesa or iron wood (Mesua Ferrea), this is no easy task, and makes clearing a very expensive item in the formation of a garden. This being done, the jungle or undergrowth (which is very great) is fired, the ashes forming a good manure, the stumps of the trees being left to die at leisure.

Digitized by Google

The soil is of two classes, the light sandy loam from the Tellahs, which is often gravelly: this is not considered favourable for the growth of the plant, and in consequence of the elevated situation of the Tellah, in the rainy season the little good soil to be found there is washed to the bottom of the Tellah, leaving the roots of the plants exposed to the inclemency of the weather; in addition to which, ground of this nature is very subject to heavy landslips. On the other hand, the soil that is found upon flats is most unquestionably of a superior character, being of a deep rich loamy and fibrous nature, and altogether much better adapted for the welfare of the Tea plant. The soil does not differ in the various plantations, the success attendant upon the bush being mainly attributable to careful planting, pruning, plucking, manuring, &c.

The climate of Cachar is of course, like all other places in India, divided into three seasons, the hot, cold, and rainy. The cold season is certainly splendid, and I have heard it stated upon reliable authority that it is even superior to Italy or Spain, the thermometer showing 45° in the morning and nights, and the extreme heat at mid-day not exceeding 75°. The only drawback to this season is a rather disagreeable fog or mist during the early morning hours. The hot season is like most other places in India, with the exception of the absence of the hot winds during this period. Cholera is very prevalent, and a long continuation of the blazing sun is no advantage to the Tea plant; and the rainy season is looked forward to and prayed for by the planter. At this time of the year Cachar is subject to very severe storms indeed, coming from the north-west, frequently accompanied with hail, which is very destructive to the plant. The rainfall is also very considerable, sometimes reaching to 150 inches; but the amount that fell last year was only 128 inches.

Having now given a description of the land, soil, climate, &c., I will endeavour to convey to you some idea of the manner in which Tea is treated before it reaches the market, and the various processes and manipulations it has to pass through, together with an idea of the expense attached to these operations; also to put before you the difficulties and enemies of both tea-planter and plant. Presuming, then, that the virgin jungle or forest has been cleared, it will of course be necessary to prepare the ground and make all ready for transplanting the young seedlings from their nurseries. This is done with the hoe, and is generally gone over twice, first roughly, and afterwards deeply and more carefully. The average amount paid for the first hoeing is 25 rupees per acre—the second hoeing costs 3 rupees 4 annas per 20 nulls—302 being equal to one acre. Manuring in the first instance being deemed not necessary (the decayed vegetable matter hoed in at first, together with ashes accumulated from the burned jungle, is considered ample), the ground is then ready for staking, the cost of which is 2 rupees per acre, and simply consists of determining the distance apart the young plants are to be placed from each other, which is usually 4 feet by 4 feet all over.

SEED.

There are five jâts or sorts of seeds planted in Cachar—viz., China, China hybrid, Assam indigenous, Assam hybrid, and Cachar indigenous. Of these the yield and the best price is obtained from Assam indigenous; it thrives better, grows larger, and flushes quicker than any of the above-named, but unfortunately at present there is not a great quantity of it in Cachar, owing, I should be inclined to say, to the great difficulties attending the transmission of the seed from Assam, its parent country. There is little or no seed grown in the gardens in Cachar, the gardens being all under China and China hybrid, and that class of seed nowadays does not find a ready market.

Digitized by Google

The time for collecting seed varies greatly, as all plants do not come into flower at once, but it generally commences early in October and continues till even December and January. These seeds are contained in a capsule; and to give an idea of their formation, they closely resemble in size, shape, and colour a Barcelona nut. Their ripeness is ascertained by merely cracking the capsule; and if the contents (which are also like a Barcelona) is of a deep nut-brown they are fit for gathering; if they are not ripe, they are of a deep reddish brown, spotted with white. They are then allowed to remain on shelves till the capsule bursts, and upon becoming dry they are ready for sowing. The greatest care should be taken in the transmission of seed from one district to another; they should be nicely packed in closely-nailed boxes; on the bottom of each box there should be a layer of fine charcoal-dust, then a layer of seeds, and so on till the box be full. The rapidity with which Tea-seeds germinate will of course admit of no delay in removing them from these boxes, for if kept for any length of time a very small per-centage will be of any value. Should they be kept, for instance, till February or March, the planter may consider himself lucky if 50 per cent of them come up; and if to April, 5 per cent will be as much as any one can expect. I here quote some remarks from a report on the Government plantations in the Kangra valley and the Punjab. "On one occasion twelve large boxes were received in July, but not one germinated; many parcels on arrival in Calcutta were sent to the plantations by letter dak, but only one hundred and fifty out of some thousands of seeds germinated or came to anything." I have on my own garden received seed which has yielded nearly cent per cent. Again, I have also had some that did not give three per cent. Upon the nurseries being ready—this is generally in a shaded place, where beds about 5 feet broad are formed, the soil having been beaten till it assumes a fine consistency—the seeds are inserted at a depth of about 2 to 2½ inches and at a distance of 1 by 6 inches apart; a temporary roof or shading is then made so as to cover all the beds: this is done by driving bamboo uprights in the ground and placing others across them; dried grass is then put on the top to protect the ground from the great heat of the sun. The beds are irrigated about every three weeks (this, of course, is in the absence of rain). When the young plants appear, care has to be taken in the way of keeping the beds in a moist state, not too wet, as too much damp is apt to rot them; as they advance in age and size, such care is not necessary.

TRANSPLANTING.

There are two descriptions of transplanting, one for the formation of a new garden, the other for filling in vacancies in an old one. In the first case, the seedling is removed from the nursery when it is about 6 or 7 months old. The best season for transplanting is most decidedly the rainy season, June or July for instance; but there is no necessity to take this as a rule, for they may also be removed in the dry weather; only this involves watering artificially, which is extra, and therefore unnecessary, expenditure. In lifting them from their nursery-beds, care has to be taken to remove with the plant a ball, or as much soil as possible attached to the roots, as they throw out a large central or tap root, which, if cut or over-exposed, either destroys the plant or renders it very sickly for a long time. Holes should be dug for the immediate reception of the seedlings, as unnecessary exposure in no way tends to strengthen them. For filling in vacancies, the seedlings are allowed to remain in the beds for a year or eighteen months, as small seedlings do not thrive well among large plants: the season for this operation is also the wet.

Digitized by Google

THE PLANT READY FOR YIELD.—PLUCKING.

No leaf is plucked from the bushes till the third year after transplanting; the yield is then about sufficient to liquidate the expenses consequent upon the past three years' labour. The season for gathering or plucking usually commences about the beginning of April, and continues until October, and is conducted under the now generally recognised rules. Women and children are selected for this purpose, in preference to men, for their lightness of hand; they are each provided with a basket for collecting the green leaf, and pluck to the following instructions:—All shoots that have attained six leaves are "sloped," or, in other words, three taken and three left, the three which are left generally flushing or being ready for plucking again, providing the weather is favourable, in about twenty or twenty-five days. There are about twelve good pluckings in the course of the season obtained from each bush. The greatest care and personal supervision by the planter *himself* is absolutely necessary to prevent the women from plucking indiscriminately, which, of course, they are only too prone to do, as they are paid according to the quantity of leaf they pluck in the course of the day. A few severe fines by the way of example have generally a salutary effect, and after a short time they really become very careful. There is always a sirdar or foreman to every gang or two, so that there may be no want of supervision. The yield of a garden entirely depends upon good or bad management, such as careful plucking, manuring, cultivation, and, above all, pruning. A fair season will give an average yield of four and a half maunds per acre (a maund is 82 lb.) I may here add that the green leaf makes 25 per cent less of Puca (or real Tea). Four and a half maunds is by no means the maximum yield: on this garden Bowalea, on one part last year, eleven maunds per acre were taken from it. If this could be maintained, Tea would soon bid fair to be a lucrative investment; and I don't see why it should not, providing Tellahs were abandoned, and flat plantations adhered to. But there are many reasons why small yields are so prevalent; among which I may name, bad pruning, want of manure, under-plucking one year, and over-plucking the next to make up for it, and numerous others, that only a Tea-planter on a plantation can see.

PRUNING.

This is one of the most, or in fact the most, important operation connected with a Tea-plantation, and one that requires more European experience than any other; it is here that a man (a gardener) from home tells. I do not mean that a gardener can only shine in this particular branch, but I am sure any one will agree with me in saying that others, planters who are not gardeners, cannot have the same amount of knowledge on this subject that a professional man who has devoted his life to it has. Till of late there were two methods of pruning—viz., with shears, now very wisely condemned, and the ordinary pruning-knife substituted. In the first instance, the coolie was given a stake which was generally about 2 feet long; this he placed in the centre of the bush, and was instructed to *cut* to the height of that stake, totally ignoring all the niceties of that really beautiful operation of pruning. But these doings are of the past, and as the old saying is, "people live and learn." Our present mode of pruning, and which has proved more satisfactory, is by giving the coolie a good pruning-knife, and he takes each plant and dresses it as we do a Gooseberry bush at home. In some gardens, where labour is short, the women are employed in this work, and soon become very expert at it—I may venture to say even better than the men.

Digitized by Google

MANURE.

This has been the subject of great controversy for a long time, not only among planters, but with men of general agricultural celebrity. There are several methods of manuring the Tea-plant, such as decayed jungle, oilcake, cow-dung, and a patent called Cirencester manure, the results of which I am as yet unable to speak of; its cost is 12 rupees per cwt.: 2 cwt. we have purchased with a view to an experiment. The directions given for using it are, add an equal quantity of soil or refuse of any sort, mix well, and apply 1 lb. to the roots of each plant. I am strongly in favour of cow-dung, and from what I have seen of effects produced by it, I am most certainly of opinion that it cannot be equalled: not one of its least advantages is its abundance for the mere gathering it; I have seen nearly a thousand head of cattle upon one garden, and nearly every coolie is the possessor of two or three.

MANUFACTURE OF TEA.

Possibly the manufacture of Tea may not interest you so much as the details connected with the gardening portion of it, but I fancy you might like to have a short insight into the manner in which the popular leaf is converted into the still more popular beverage. Assuming that the day's leaf is collected, the first process of manufacture now begins. The leaf in the first instance is conveyed to the leaf-house, where it is placed upon shelves; this is done with a view of withering the leaf; this being effected, on the ensuing morning it is then placed in the sun for a short time, and then conveyed to the manufacturing house. This building requires to be of commodious dimensions, and is furnished with both rolling-tables and choolahs. The former is an ordinary long table, with wooden laths placed horizontally; they are about 1 inch by 1 inch thick, and are placed about $\frac{1}{8}$ of an inch apart; upon this table the leaf is rolled or manipulated until it assumes a doughy consistency, after which it is shaped in small cones, and left in this position for half an hour; it is then broken up and placed in a wooden trough to ferment, which is accomplished in three hours, or if the day be very hot, two and a half will be quite sufficient. If allowed to remain in this state too long, it soon gets sour, which makes it unfit for market. It is then rolled a second time, after which it is ready for firing: this process is performed by placing the rolled leaf upon trays, the bottoms being made of wicker-work: this being done, the trays are then placed upon the choolahs in order to dry it, which is done in 25 minutes or half an hour, care of course being taken that it is not overdone or burned. The choolahs are a long row of brickwork, divided into compartments the size of each tray, so that each has its own fire: charcoal is the material used for firing. After being dried it is taken to the sorting-house to be classed and packed, this being done by putting it through different-sized sieves. The classification is as follows:—Pekoe, which is the tip of the shoot or bud, Souchong the second leaf, and Congou the third leaf; there are other two sorts, broken Pekoe and Pekoe dust, which are the refuse of the whole, their relative value being in the order above-named.

I have now put before you to the best of my ability what I consider a brief view of the working and general management of a Tea-plantation, and I sincerely trust it may prove interesting to the readers of this truly valuable magazine.

ISLAM KHAN.

Digitized by Google

Calendar.

KITCHEN-GARDEN.

The usual winter operations, such as digging and trenching, may now be carried forward with all speed. Notwithstanding the arguments promulgated by some, of trenching and otherwise turning up land to the action of the weather having a bad influence on the soil by keeping it wet, &c., we would decidedly urge the necessity of leaving no vacant ground in a dormant state through the winter; practical men know with what facility they can break down level and prepare pulverised ridges of powdered soil, to say nothing of the wholesale destruction of slugs and their eggs! Where rank useless vegetation is allowed to stand untouched, slugs in proportion are kept in stock. However, some places which we have visited this season have been sadly devoured by these slimy vermin, and evidently the surrounding dense masses of trees overhanging the garden-walls had much to do with rearing them in such numbers. Manure may be trenched down if it is rank, but decayed material may be turned in under the top spade only. The manure-yard, especially if it is of limited size, may be cleared out preparatory to receiving fresh stores, including parings of walks, leaves, wood-ashes, garden refuse, and other stuff valuable for land; but without the addition of manure from animals, the gardener's success will not be great. Keep all manure-heaps covered with earth, especially when it is wheeled into the garden. If Peas and Beans are to be sown for an early crop, a well-sheltered dry border should be selected; sow the seed in rows on the surface, and draw dry earth over it. Chopped Furze placed over the seed often keeps mice and rats in check, and also keeps the seed dry; red-lead may also be used against vermin, as often advised. But where means are at command, Peas and Beans are grown in boxes, turf, or pots, and planted out in March, thus saving much trouble and a little seed. Peas and Beans may be sown more thickly now than when the season is more advanced—about the middle to the end of the month is the time when the seeds are generally sown.

Keep up supplies of small salading; protect all choice vegetables when weather is severe, placing Parsley under hoops, or a framework, on which boards, mats, &c., can be placed, is a useful contrivance during frost and snow. Hand-lights on Cauliflowers must be taken off when weather is mild; those with tops are the most useful. Go over Cauliflower and autumn Broccoli frequently to see that no heads are in danger. The plants lifted and "heeled" in under a roof keep fresh long at this season, or hanging up head downwards in a cellar answers well; and Lettuce do well stored in frames or turf pits. It is well to have a quantity of all the vegetables in general use placed where they can be easily got at during frost and snow-storms. Radishes and late-sown Carrots do well with coal-ashes thrown over them. Earth up Celery as required; too high earthing rots the crop. Collars have come much into favour with us—one can get over the work more speedily, and do it better; but for the weekly or piecemeal earthing, collars are not of so much value. Stir surfaces among all growing crops; keep decaying leaves cleared off. Spinach requires attention in this way, and protection will always pay for the trouble. Seakale and Rhubarb may be taken into warmth as required: the former requires to be kept close and dark; a cellar answers well. The old system of pots and fermenting material does well where there are no other means for forcing; a hole sunk in the ground, covered with boards and manure, does well enough, but excessive heat has to be guarded against. Mushrooms coming into use should not be deluged with too much water, but keep the soil on the bed moist, and a moist atmosphere in the house. There will be plenty of work under cover if wet or severe weather should set in—pot-washing, stake-making, looking over crops of roots, &c., in store, cleaning seeds, getting the remains of last year's stock examined to see if they are fit for use; let them be tied in papers, and their quantity noted down against the new seed-list. The Brassica kind and some others remain fresh for years.

M. T.

Digitized by Google

FORCING DEPARTMENT.

Pines. — Winter-fruiting varieties that are swelling off their fruit will require careful attention in the way of watering. Indiscriminate watering must now cease, and each plant examined at least once a-week, and only those watered which require it. Keep them steadily and moderately moist, with a night temperature of 65° to 70°, according to the state of the weather, with 8° or 10° more by day with sun. Give air on a fine day, and do not give so much atmospheric moisture now, as a close moist atmosphere is favourable to the growth of large and unsightly crowns. When more fruit ripen than are required at any given time, they can be kept for three or four weeks in good condition by removing their plants to any dry room, where the temperature ranges about 50°. All plants that show fruit now should receive every encouragement. Keep them near the glass in as light a place as possible, with a temperature of 70° and bottom-heat of 85°, keeping them moderately moist at the root. These will give ripe Pines at a time in spring when Pines are most scarce, and when other fine fruits are also scarce. If those suckers that were potted early have grown so as to become in any way crowded, let them have more room, now that more plants have been fruited off and room can be spared. These, being now well rooted, will require careful treatment, so that they may neither make a weakly-drawn growth, nor get so stunted as to run the risk of their fruiting prematurely in spring. In cold weather let the temperature be 55° at night, when mild 60° is high enough, with a steady bottom-heat of 75°. A little air should be given them in all fine days when the heat exceeds 65°; give them just moisture enough to prevent them becoming mealy dry. If the plunging material be moderately moist, and the pots firmly and fully plunged, very little water will be required to keep the roots healthy. The atmosphere should be dry rather than otherwise, but not by any means parching. All suckers recently potted should be plunged thinly, and have 5° more heat, until they are well rooted. These, if stocky and in very light pits, may be kept gently on the move all winter if the state of the young stock makes this desirable; but as a general rule, the less plants grow now till the turn of the year, the finer they will be next summer. All succession plants intended to be started after the shortest day should not be kept colder than at 60° at night, with a few more degrees of bottom-heat than has been recommended for suckers. These require the same treatment as regards watering recommended for suckers. If the bottom-heat is supplied by hot-water pipes, and the plunging material shallow, be watchful that the plants do not suffer from excessive drought. Get covering ready for all Pine-pits that can be readily and conveniently covered during hard frost. It is much more economical, and much better for the plants, to cover the glass than to have recourse to violent firing to keep up the heat.

Grapes. — Look carefully over Grapes now hanging three times a-week, and remove all berries that show the least signs of mouldiness or decay, or it will soon infect the whole bunch. There should not be a plant requiring water in vineries where Grapes are required to hang successfully. Where it becomes imperative to have the vinery filled with plants, it is safest to cut the bunches with a portion of the wood attached, and put them in bottles of water with a little charcoal in them, and hang them in a dry fruit-room where a uniform temperature of 45° can be maintained. Outside borders in which are the roots of Vines with Grapes on them should be protected from rain, if such has not already been attended to. This is perhaps the most critical month for keeping Grapes of the whole season. Remove all decaying leaves immediately they come off with a slight touch, and make extra fires on fine days, when the house can be opened and the damp expelled. Keep the ventilators shut on damp foggy days. Firing and opening the house on very damp foggy days only subjects the Grapes to a current of damp air, and the moisture condenses on the cold surface of the berries. Keep the temperature steadily at 45° on cold nights, when fire is necessary. All Vines intended to be forced before the end of February should have the outside borders so protected as to throw rains off. Wooden

Digitized by Google

shutters, tarpauling, and sometimes corrugated iron, are used for this purpose. Prune all Vines from which the leaves have fallen; remove the loose bark, and clean and prepare the vineries for starting as directed last month. The early vinery to be started now should have a ridge of leaves and stable-litter formed inside of it, to be turned over at intervals after it begins to heat. This process creates wholesome fumes in the house, and helps to keep up the necessary heat with little or no fire-heat for a time at first. The outside border should be covered over with 2 feet of the same material, and either thatched or covered with shutters to throw off rains. This is presuming that the border is not supplied with bottom-heat, which is as yet rarely the case: a less amount of covering will be sufficient where the borders are chambered and heated from beneath. Start with a temperature of 50°, and sling down the Vines so that the top part be brought into a temperature not higher than their lower parts. Syringe twice daily with tepid water, and otherwise keep a moist atmosphere. Pot-vines started last month may still be kept at 55° till they are fairly started, when they may have 5° more. Take every advantage of sunshine by shutting up the house under its influence, as the less fire-heat used in all forcing the better. When they have forced their buds, and where two growths appear at a bud, rub off the weakest as soon as possible. This is a good time to collect soil for new Vine-borders, taking it when in as dry a condition as it can be had, and if possible putting it under cover until it is prepared for being wheeled into the border site.

Peaches.—Trees in late houses, on which the leaves are still hanging, should have a "whisk" once a-week with a broom, to bring off those leaves that are ready to drop. Lose no time in pruning and tying those that are intended to be started next month. Wash all the glass and woodwork, and dress the trees with sulphur, soot, and clay, reduced to the consistency of paint with water. Remove all the surface inert soil from the borders, both outside and inside the house, and replace it with loam and rotten dung in about equal parts; and if the border is dry, give it a good soaking of water towards the end of the month, when the house should be shut up, and the temperature kept from falling below 40°. The outside border should be covered up as directed in the case of the early vinery.

Figs.—Where late crops are yet to ripen, let the atmosphere be kept dry and the temperature at 60°. Prune and tie the early trees as soon as all the leaves are fallen, and keep the house cool, and the plants moderately dry at the root. Pot-plants may be stored in any shed, where severe frost cannot reach them, till required to force. Trees in limited inside borders should have all the surface soil removed, and a top-dressing of turfy loam and horse-droppings put on.

Cucumbers.—The days being now short and dull, the temperature at night should range a little lower: 65° to 70°, according to the weather, with 8° more by day, when there is any sun, will be sufficient till the turn of the day, and more sunshine can be had. Water at the root and moisture in the air must be regulated according to light and heat. Give a little air in all fine days. Stop young growths at every joint, and remove all deformed fruit, not allowing the plants to bear too many at a time. Examine the soil when near the pipes, and see that it does not become too dry. If green-fly shows itself, destroy it by moderate fumigations on two successive nights; and keep all signs of mildew in check by dusting the affected parts with sulphur.

Strawberries in Pots. — These should no longer be exposed to heavy rains, and, if there is convenience, should be put in cold frames or late peach-houses. Where no such accommodation can be spared for them, build them into stacks, laying the pots on their sides, and packing between them with ashes or sawdust, thus forming ridges of them like potato-pits, and which can easily be protected with straw or mats in hard frosts.

Digitized by Google

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

J. Blackburn, Oldham.—You should not be disheartened although a good number of your seedling Pansies come worthless; and never throw away a promising flower, although it is not perfection in form, if there is anything new in colour—you may get good seedlings from it. The following is what constitutes as nearly as possible perfection in the Pansy, and it will guide you very much in what to retain and what to discard. The outline should be quite circular, and all the petals even on the edges, and quite flat; the face of the flower must be smooth and free from crumples, the side petals should meet a little above the eye; the ground-colour should be entire, whether lemon, straw, yellow, or white; the rays or lines should not run through the ground-colour to the margin; the centre or blotch should be solid. Selfs of whatever colour should be rich and dense; a fine glossy surface is essential to them all, of whatever shade: in the yellow grounds there is often a tendency to a deeper shade in the bottom petal; this is a fatal defect in show varieties.

William G. Ward.—You will never succeed well as an exhibitor of florist flowers without proper stands. If a proper stand sets off Dahlias to advantage, Pansies are much more improved by a well-got-up stand of say a light-green colour; the same may be said of Picotees, Carnations, and the like. In putting up your stands of flowers of any kind, the less you handle them the better: do just as much as you can to improve them with safety, but nothing more.

K. B.—Campanula pyramidalis is nearly a hardy plant. If your soil is anything approaching to clay, it will be much safer to lift your plants. A cold frame will be sufficient protection during the winter. Water should only be given to keep the soil moderately moist; if kept too wet, they are apt to damp off. The Campanula is much improved in plant and flower by pot-culture during the growing season, and clear manure-water may be freely given. A good compost to use is well-decomposed dung, leaf-mould, turfy loam, with a fair proportion of sand, and good drainage.

Young Gardener.—We do not know of a work on the subject you name. It is included in Loudon's 'Self-Instruction for Young Gardeners.' But if you learn even the elements of geometry, all else will be easy to you.

M. J. Alexander.—Any nurseryman who grows Ferns can supply you. We never recommend individual nurserymen.

T. Forsyth.—The scales on the leaf you sent are very common this season, and are caused by an insect.

Digitized by Google

AN AMATEUR.—Among the many recently-invented handlights that have come under our notice we like "Gilbert's Registered Handlights" the best. They are miniature *frames*, designed by Mr Gilbert, gardener at Burghly Park, and are constructed of wood, glass, and wrought-iron combined. They are cheap and durable, and most useful protectors for Cauliflower, Lettuce, and early vegetables in general. They can at the same time be used for striking cuttings and raising tender seeds. They would meet your wants very well, and are advertised in the garden periodicals.

NOVICE.—For your early house, plant four Black Hamburg, one Buckland's Sweetwater, one Forster's White Seedling, one White Frontignac; and if you can wait till May, one Duke of Buccleuch. In your late house—four Lady Downes Seedling, two Gros Guillaume, one Alicante, one Gros Colman, two Muscats at the warm end, one Raisin de Calabria, one White Lady Downes.

J. F.—We cannot advise in your case. You ought to be able to judge how to act better than any adviser under the circumstances.

YOUNG GARDENER.—It is our intention to do as you propose. It will be done before spring, and you will soon see an intimation of all that is intended. We cannot at present embrace any except the most popular subjects.

T. P.—Send your name and address first.

A. S. S.—We do not think it advisable to publish more on the topic at present. Besides, your remarks would, we fear, tend to irritate, although we agree with every word you say.

AN OLD SUBSCRIBER.—We are sorry that the full instructions we intended for you are too late for this issue. Please send us your full address and we will attend to your wants, as much of the work should be done this month.

A NEW HAND.—No doubt the grub is injurious to the Pines, and if they have destroyed the bark of the roots, their death may be attributed to the grubs.

SEMPERVIRENS.—We do not know of any books on the subject cheaper than those you name. Will the series of articles by Mr Fraser, in the 'Gardener' for last year and this, not meet your wants?

IT has been resolved to hold a great international fruit and flower show at Manchester next September, in connection with the Botanical Society of Manchester. Considering the wealth and central position of Manchester, we should think such a show would prove a great success, especially under the able superintendence of Mr Bruce Findlay, who has invariably been successful in connection with Manchester exhibitions.



Digitized by Google

THE

GARDENER.

DECEMBER 1872.

CAMELLIAS FOR AUTUMN FLOWERING.

EXCEPTING in gardens where there are large and varied collections of plants, there is a certain interval of time in autumn when the gardener finds greater difficulty than at any other time to meet successfully a large demand for flowering-plants and cut-flowers. This interval generally extends from the first sharp frost of October, which cuts down the greater part of outdoor bloom, till the beginning of December. It is during this interval that flowers of almost any description are, if not the most acceptable, used with the greatest economy. In gardens with limited collections of plants, scraps of bloom that at other seasons would be overlooked, are from the middle of October till the end of November carefully culled and cherished. Blooming plants of standard character and beauty are then most esteemed, not only for their own intrinsic beauty, but because of the comparative scarcity of flowers, however humble.

It is a wonder and a pity that so tractable and splendid a flower as the Camellia has not been more generally coaxed into bloom at the season to which we have referred. Every one admits its splendour further on in the season, even where it has to compete with many rival flowers, and yet claim the place of honour. Camellias in full bloom are rarely met with in October and November. The—in a certain sense correct—idea that the Camellia will not submit to be forced, no doubt to some extent accounts for this. They certainly will not do very well to be forced to open their blooms hurriedly in autumn. But the same applies with considerable force to the Azalea, and other flowering-plants not properly prepared for autumn blooming. If an Azalea has not been made to have prominent bloom-buds and well-matured wood by August,

Digitized by Google

they will, when put into heat early in October, commence to grow afresh, instead of opening their blooms. Yet when properly prepared they come into bloom with comparatively little forcing, and at this dull season they too are much to be recommended. These remarks apply with more force to the Camellia, though it is rarely met with in bloom till December.

We venture to think that any person who early in October would place a large plant of double white Camellia on an exhibition-table would receive a meritorious award for so unusual and unseasonable a production. We have not heard of such an example of Camellia culture more than once or twice. This is all the more strange, seeing how much appreciated the Camellia is at all times, and considering how easily its early blooming can be brought about when the forcing of it is practised at the right end of the year. It is only necessary to put the plants into heat in February, and to remember that, during its growing season, the Camellia is subject in its native country to a heat almost equal to that of Bengal; and acting accordingly, subject it to stove temperature, with a corresponding amount of moisture both in the soil and in the air, and to prolong such conditions until the wood is firm and the bloom-buds prominent. Then, without sudden checks, gradually withdraw the heat and moisture to supplies that are just necessary to keep the system of the plants healthy, but for the time being quiet. This, it may be said, is the usual routine of Camellia culture; and so it is. But to bloom Camellias at the time now referred to, it begins two or three months too late, and does not continue sufficiently long after it is commenced.

When caused to make their wood and bloom-buds thus early and prominent, there is absolutely no forcing required in October. And this is just the difficulty to be got over; for to force Camellias hurriedly to open their blooms by fire-heat, causes many of the buds to drop, produces those that do open of poor quality, and forces the wood-buds prematurely into growth. From our own experience, we are almost certain that any one who once gets a fine bloom of Camellias in October and November will come to the conclusion that at no other time are they so splendidly pure in colour, at no other time do they last so long in perfection, or are so much appreciated. At any time, Camellias will always hold a high position as flowers, but after the period named they have more rivals. In frosty weather at mid-winter, when more fire-heat has to be applied to keep frosts from a general collection of greenhouse plants, with which Camellias are in the majority of places classed, Camellia flowers do not last nearly so long without dropping as they do in an atmosphere that is cool and kept moderately dry, with a minimum of fire-heat. Like most blooms they dislike a damp stagnant atmo-

Digitized by Google

sphere, and the drier air-currents of February and March are equally unfavourable to them.

These remarks have not been made by way of depreciating the Camellia at any season, but with the view of inducing those who have not tried to bloom a portion of their stock in autumn to do so, feeling sure that if they once get a good crop of Double Whites and Imbricates in October they will never wish to be without them again. At this season they are most valuable for table decoration, and for almost every purpose to which cut-flowers are applied. Their effect in the conservatory at so dull a season is more striking and lasting than at any other time.

TEMPERATURE OF FORCING-HOUSES.

Hot-water pipes are a necessary evil in hothouses. It is hard to say how many of the evils which afflict the inmates of any forcing structure may be traced directly to fire-heat. I believe that, could we keep up the necessary temperature of our vineries and other fruit-houses without its assistance, such pests as red-spider and thrips, and diseases such as shanking and shrinking, would to a great extent disappear. We cannot, however, do without it; but I venture to think that we might dispense with fire assistance oftener than we do, especially at night. In the hurry and anxiety to push crops forward quickly, the pressure applied in the way of temperature during cold nights is often excessive, though it is exceedingly questionable if it is of the slightest advantage, and not rather a positive evil. Is any one prepared to maintain that a higher night temperature than will just save the plant from injury by cold is advisable? Physiologists tell us that diurnal rest is as necessary to plants as to human beings; but does a Vine, for instance, which has been exposed to a bright sun all day, and afterwards subjected to the scorching influence of hot-water pipes at night, receive any such relaxation? Certainly not. This is simply working both night and day: perspiration from the leaves, carried on excessively during the day, as it always is in hothouses, ought to be completely suspended at night, to afford that rest to the plants which they require, in order to lay up a store of sap and energy for another day's work. That untimely withering of the foliage which is so often seen in vineries, is without doubt an indication of something being wrong; and what else can be the cause of it than an enfeebled constitution brought on by over-exertion? I am not here referring to scorched leaves, which are generally the result of temporary neglect, but to that withered condition of the foliage which is frequently to be seen on

Digitized by Google

the Muscat Vine long before the fruit is ripe, and which comes not at once but gradually, and in a manner which can hardly be attributed to anything but an exhausted vitality.

On occasions when no fire-heat has been used at night in a vinery, the foliage in the morning presents an appearance which it never does after a night's hard firing. In the former case, the leaves are laden with globules of water or superabundant sap, which hang round the edges of the leaves like pearls, and the shoots seem bursting with vigour. In the latter, they are as parched and dry as if they had been exposed to the mid-day sun. Now the appearances I have described in the first case are always accompanied by vigorous growth, if the absence of forcing-heat at night is constant; the second by attenuated growth and thin, emaciated foliage. There are shades of difference between the two extremes; but, as a rule, unless the night temperature is low enough to arrest perspiration almost entirely, if not quite, there must, according to well-known physiological laws, and according to the simple law of supply and demand, be a loss of vigour, which, in the aggregate, will amount to failure if it does not result in ruin and death.

If this reasoning is correct, what practical lesson does it teach? If the temperature of a vinery must be kept low enough at night to arrest perspiration, it means that Muscats that have been allowed a temperature of 90° or 100° during a sunny day, when they are perhaps in bloom, must be treated to a temperature of 50° at night, to fall, may be, to 45° before sunrise. This is a nut for you, readers, to crack. Is any one prepared to prove that such practice would be ruinous, or even that it would not be advisable? We mean to make the experiment, and are sanguine of the result. We have proved long ago that Muscats will set as thick as Hamburgs in a temperature of 60°, and that they may be frequently subjected to a lower figure than that at night, even after they are set; but under such treatment they require a longer period to ripen, unless the summer is bright and the most is made of it; but the results are better in the end in every respect.

What I recommend, therefore, is to work by day and rest by night, —in forcing Vines more particularly, and I may say Peaches. If loss, not gain, is the result of a high night temperature, it is clear that it should be discontinued; but I leave the subject here, though I may return to it if needful, for I have not said all yet; but in the mean time I should like to hear the opinions of your correspondents on a matter which would be well worth discussing. J. S.

Digitized by Google

VIOLETS AND LILIES OF THE VALLEY.

WHAT lady ever cries "Enough!" of these sweet winter and spring flowers—welcome alike in cottage and in hall, and their culture being so simple that, with proper treatment through the summer, they may be had in more or less abundance through the winter and spring months? On entering my present situation, I was told that Violets were expected all the winter. I was informed same time that it never had been done before, but my informant said she knew it could be done, and I was to do the best I could. The sorts then about the place were single and double Russian and Neapolitan. I commenced with these, and procured others, and went on for some years with varying success; but never having anything like a crop of flowers till that unrivalled variety the Czar made its appearance, which, with its perpetual-flowering properties, made the production of flowers in winter an easy matter. We grow it now by thousands; for besides those prepared to be put in frames through the winter, we have lots of it in all spare places through the garden. About eight lights of pots are annually filled with lifted plants for winter, which, with those in the open ground in mild seasons, seldom fail to give plenty of flowers. Here it begins to flower in September, and a number of bunches are got weekly from the plants before they are housed for the winter.

The way I treat it is—in April I pull the plants to pieces, discarding all exhausted crowns, and keeping for stock the fresh green ones. I never use runners, as, being much smaller, they take longer to come to perfection, and are not so precocious in flowering early. The crowns are planted in rich ground, in a situation where the sun does not strike hard all day, as when too much in the sun they are apt to become spidery, which detracts from their vigour. I allow 18 inches between the rows, and 1 foot from plant to plant in the row, as these, from the treatment they receive, are immense specimens compared to Russian at lifting-time. In October, when the Cucumbers are all cut from the pits where I grow them in winter, I prepare the beds by throwing out 3 feet of the exhausted material, and filling up the space so made with fresh leaves. On the top of the leaves I put about 2 inches of rotten manure; on this—the plant being lifted with good balls—are set the leaves, almost touching, as they are not intended to grow, but to flower all they can. I then fill up to the top of the balls and all round the collars of the plants with sand, for three reasons—first, to prevent much leaf-growth; second, to keep down damp, as ours is a very humid part of the country; and lastly, to keep away slugs, for which it is an effectual remedy, as we have scarcely a bitten flower. With the mild heat of the leaves, they soon take hold of the thin layer of rotten manure; the leaves also, by being hard trodden, retain their heat a long time, and keep the plants comfortable through the short cold days and long nights of winter. I am very particular in regard to ventilation, the sashes being thrown off on all mild days and no coddling allowed, as I have found that when much shut up more leaves than flowers are the result. This sort requires no forcing, flowering naturally with a little assistance and protection. The frames are covered up in hard weather with mats, and when very hard, with straw in addition, as, though perfectly hardy, they are chilled and thrown back in flowering by being frozen.

The other sorts grown are the double white Queen and double blue King of Violets, Neapolitan, and a pink double variety—all very pretty, but not flowering till spring, and then going off at once. They are grown merely for variety, as, if I had my own way, I would grow nothing but Czar; as by growing this sort, and preparing the plants as I have described, I have been enabled to supply

Digitized by Google

enough of flowers to a family of young ladies who do not soon cry "Hold!" where Violets are concerned.

Lilies of the Valley are also in great request here in and out of season. How often do we see this plant, and Violets also, planted in the poorest part of the garden, and yet both expected to produce flowers in abundance! The opposite has been my experience with both, as I treat them both liberally, and I am fully repaid in the health and vigour of the plant and individual blossoms. In growing the Lily, I make it a point to disturb an established bed as little as possible, as newly-planted beds have more tendency, when establishing themselves, to make leaf-crowns than flower-buds. In lifting for forcing, I cut turf off the roots about 1 foot wide right across the bed, filling up the spaces so made with good rich soil, in which the plants from both sides soon root, and by the second year are ready for forcing, the spaces untouched coming in the following year. In the interval these beds at first are planted in rich soil; and when I have it, and can afford to do so, they receive twice or thrice in summer good waterings of liquid manure, and invariably are covered all the winter with cow or horse manure, raking it off before the plants begin to grow in spring, as they are apt to grow through it and get blanched, and are easily hurt by any spring frost, as the flowers are showing soon after starting to grow. I lost a bed this spring from this cause, as, on uncovering, the flower-buds were as thick as the leaves, but one night of hard frost at the time browned them all. In keeping beds for a number of years they are apt to get too thick of stems; and as soon as done flowering in spring I go over and pull up a number of the stem and leaf combined shoot, leaving those left an inch or two apart; for if left too thick all the summer the crowns do not ripen, and the crop of flowers is small. By following this treatment when a turf is lifted for forcing, it will be found that almost every crown has a flower—and such flowers, compared to starved specimens! When our family is in London, and Lilies have been sent to them, a number of visitors have asked if they were a new kind, they were so strong. The forcing of this plant, after being properly prepared, is very simple. I find that the earlier batches throw up their flowers best by being kept in the dark till they show themselves, gradually inuring them to light, which I manage, if the roots are in pots, by inserting a pot of same size over it; or if in a box, by inserting another box on top of it, the pots being placed under an arch by the side of a flue in a small propagating house used for forcing in winter in later forcing. The turfs are merely laid on the bed of the house and a little soil drawn round their sides, and the flowers cut and sent in when ready. It is a capital plan, when you have the plants movable, to remove them to a cool house before they are fully in flower, and let them expand there. They then stand as long again after being cut, or in the pots in rooms. This summer treatment will look to some to imply a deal of work, but it is surprising how little time it takes, we having little to spare in this establishment; but when the result is good, the time spent on the object is not much grudged. J. N. G. H.

FRENCH BEAN FORCING.

The French or Kidney Bean has been cultivated in this country for nearly 300 years; still it does not appear to have become any hardier to this day. It still requires an Indian climate to grow it, of which it is native. It is one of the subjects which has received mention from

Digitized by Google

Mr Darwin as apparently bearing evidence against his theory, but he thinks it has not received attention in the way of selection at the hands of cultivators, it being quite clear that nature will not select it in our climate. Within our memory, a number of good varieties have been selected; the most of them can be used for forcing: one of the best is the Negro Longpod, for sowing the first week in September and afterwards in February. For general forcing, Sion House and Fulmer's forcing, especially the latter, are our favourites. Osborne's new forcing French Bean is something in the way of Fulmer's; it is if anything dwarfer and finer, the seeds generally smaller, and the colour darker in the speckling. Newington Wonder, well grown, is the perfection of a Bean for forcing, but if not well grown it is poor, the pods being rather diminutive: it also has a tendency to run, especially when planted out, which is not in its favour as a forcing Bean. French Beans for the exhibition-table and for a good French cook are two quite different things, like Cucumbers and Onions and Carrots, and many more things in fruit and vegetables. For the exhibition-table we want a Bean from 6 to 10 inches long, about or near ½ inch broad, and all of equal length and size, to catch the eye of the judges: of course they must be crisp and young, with scarcely a sign of a seed. For a first-class French cook we want a Bean 2½ in. to 3 in. long, ¼ in. broad, firm and crisp, rather round than flat, such as our larger varieties never are, because when gathered that size they are too young. Newington Wonder comes nearest this description of any Bean we know; we want something between Newington Wonder as a whole and the Negro Longpod. Such are the sorts of Beans we find in the tins of preserved vegetables imported from France, where they "do those things better," and indeed anything in the preserving way, than we do in England.

French Beans are forced successfully in pots, shallow boxes, or planted out in a pit, provided they have abundance of light, and a brisk heat of not less than 70° at the root, and a top-heat ranging from 60° at night to 70° and 80° throughout the day, according to the state of the weather. Over-forcing them in dull weather, so as to draw them up weakly, should be avoided. When forcing in pots is adopted, we use 10-inch pots, and 4 plants to the pot. The pots should be clean and well crocked, and half filled with soil to begin with, using the soil rather dry than damp; and at all times it ought to be warmed before using. It is a loss of time to plant Beans in cold wet soil, as it chills the Beans, and will often cause them to rot off. They are very susceptible to cold; and, besides, they will not germinate until a good heat has risen in the soil. More seed should be planted in each pot than is wanted, as if more should grow they are easily thinned, and

Digitized by Google

it is equally probable that the necessary four plants may not germinate. When the young plants have made two rough leaves, the pots may be filled up with soil. We prefer, as a rule, however, to sow in 4-inch pots, and afterwards transplant into 10-inch pots. They occupy much less room, to begin with; and, moreover, we dislike the earthing-up system, although we sometimes practise it. We prefer to pot rather high when repotting into the large pots, as the roots spread laterally and downwards: the plants are easily supported with a few birch twigs. Some pinch the tops of the young plants to cause them to fork into two or more shoots, and which may probably cause them to fruit sooner; but we never could, on the whole, see any particular advantage in so doing. The shelves of the Pine-stoves are just the place for Beans in winter: an early vinery or Peach-house in spring will do very well, or any place where a sufficiency of heat is at command. Pots or boxes are best for mid-winter forcing, as they are more easily filled and removed—indeed sufficient for the comparatively scanty return at that dark season. Under any circumstances we prefer to use not very rich soil for winter forcing, chiefly fresh fibrous loam and a little leaf-mould; as spring advances, the soil may be richer. A coarse succulent growth is not prolific of Beans, and coarse-grown plants are more liable to damp. At all times a little manure-water can be given when the first pods begin to swell, and continued until the plants are exhausted.

For autumn and spring forcing we much prefer bottom-heated pits; the Beans sown in rows in the open soil of the pit. Light span-roofed pits are preferable, with a pathway down the middle, or with one pit in the middle and a pathway all round. Our earliest-forced Beans, put in about the 1st of September, are always sown in a bottom-heated lean-to pit, as the crop comes in the end of October, just after those out of doors are over, and the winter is not so far advanced but that the lights may be drawn back to gather the crop; but the next sowings are better in low span-roofed houses, where the crop can be gathered in any state of the weather. Six weeks are required from the time of sowing until fit to gather—shorter or longer according to the time of the year. In advanced spring, with plenty of sun-heat, Beans can be gathered in a month. A thin bed of warm leaves is of advantage, even though the pit be bottom-heated with water; over this 9 inches of soil is sufficient, which should be fresh and light. Plant the seeds 18 inches from row to row, and thin out to 6 inches between the plants. Water well with heated water; if roasted in too dry an atmosphere and dryness at root, red-spider will at once appear, and it is over with the crop. French Beans are such an evanescent crop that insects should never have time to appear if the house has been

Digitized by Google

clean to begin with, and proper attention given to watering and ventilation.

It is very necessary that Beans should be looked over and gathered every day at least, and twice a-day after the 1st of March, as they swell rapidly, and soon become too big and seedy; and when seeds begin to swell in any pod, it checks the growth of all the pods on the plant. They should be tied up in bundles, sorting them according to their length. Fifty Beans make a handy bunch, and the cook soon knows how many bunches to order to make up her dishes. After Asparagus, French Beans are the most acceptable of all forced vegetables.

THE SQUIRE'S GARDENER.

HINTS FOR AMATEURS.—DECEMBER.

THE fruit-garden will now require special attention. Where trees have been carefully attended to during the summer, there will be comparatively little to do now. Continue pruning, nailing, and tying up trees to walls, fences, or wires. Cordons, where grown, are all the better of being looked over and made secure, as when ties give way in summer they cannot be renewed easily when trees are in full growth. It is certainly worth while to use every effort to keep trees in health, knowing how expensive it is to get up a good stock even in a small garden. Where canker shows itself, all decaying matter should be rubbed off, and the wound washed with lime made as thick as paint. Moss should have attention in the same way; but the roots, allowed to have free course into healthy soil, will soon establish sound health. It may be considered by some best to let old trees bear on till their last, though they may be dying off piecemeal. Want of courage or money may keep some from renewing their walls, but if economy or profit is the object, get the thing renewed. Spend enough to get a fair return, and though it may appear a little extravagant at the time, good interest will be realised in due time, as well as the pleasure of seeing well-clothed walls and neat interesting orchards; but the short-lease tenant can hardly be expected to "sow where he may not reap." The absurd idea of proprietors planting only for their grandchildren has long exploded, as a few years' judicious expenditure gives abundance when the trees are in good hands. Planting of fruit-trees, where not finished, may be carried on as formerly advised—but let it alone in frosty weather, and never turn in snow or tread the ground when it is wet. Valuable walls half filled with trees, or wholly filled with useless ones, are a sad picture.

The pleasure-garden will still be far from being tidy—leaves will

Digitized by Google

give plenty of work for some time to come. We never saw the trees cleared so quickly as they have been this season, and disorder is in proportion; but an earlier clearance can be made. It is not well to dig up ground, either in flower-gardens or elsewhere, before leaves are collected, as they will only cover the ground, and cannot be well taken from the broken surface. Avoid allowing quantities of leaves to lie on the grass, which would be much injured. Keep worm-casts cleared off—lime-water would save much labour. The usual protection for all kinds of plants, such as Aloysias, Fuchsias, Myrtles, &c., exposed to frost, must not be forgotten: Fern-shaw, coal-ashes, evergreens, may each or all be used. Hollyhocks, Gladioluses, &c., may be well protected by coal-ashes drawn up to a point. Excessive damp is a great enemy to plants in the ground. Roses may be mulched with litter, or Fern, which is not untidy. Evergreens stuck among the stems are helpful in very severe weather; stems of Standards may be wrapped with hay-bands. Keep Rose-stocks which are to be budded on next season firm; prevent wind from moving the roots. Newly-planted shrubs should also be kept in mind, as it is distressing often to see much labour and expense laid out in lifting and purchasing shrubs and valuable trees, and then to see them die before a single growth has been made. Mulching is as necessary for them as for fruit-trees, &c. When snow falls heavy, see that it is not allowed to break branches off trees and shrubs.

Pinks and Pansies may be protected in the open ground with evergreens. Auriculas, Pinks, Violets, and all plants in pits and frames, should have abundance of air, avoiding frost and damp; water should only be used when absolutely necessary. Slugs will soon find comfortable quarters in these structures — means to destroy them should be put in force. Wood-lice will hide in the warmer corners. Tulips, Hyacinths, Narcissus, in the flower beds or borders, should have protection in severe weather—they will bloom all the better for it. Bedding-plants in their winter-quarters must not be left to themselves, but have the surfaces of the pots, boxes, &c., stirred, and dead leaves picked off; air and water should be very carefully given. No surface-dribbling should be tolerated, and enough given when the roots require it. If thrips or green-fly appear, a slight dusting of tobacco-powder will destroy them: the former generally lie on the under sides of the leaves. Primulas, Cinerarias, Calceolarias, now require careful treatment; close stagnant atmosphere will soon put an end to them. Keep up successions of Lily of the Valley, bulbs of sorts, all forcing shrubs, herbaceous plants in pots, &c., for supplying cut-flowers and decorating plant-structures. If leaves are used for warmth, let slugs be looked sharply after. "*Stage*" Pelargoniums should be kept growing

Digitized by Google

very slowly at present. Keep both foliage and roots tolerably dry, and give plenty of air. Avoid frosts, currents, and confined damp in all structures; be careful not to let hard-wooded plants suffer.

M. T.

NOTES ON AUTUMN AND WINTER FLOWERING-PLANTS.

CAMPANULA PYRAMIDALIS.

This is a much-neglected but very effective autumn flowering-plant. It is tall-growing and handsome, making noble objects in the conservatory when in flower, well repaying all the trouble and care bestowed upon it. When grown from seed it should be sown in May, using light free soil, with a little sand and leaf-mould, being careful not to bury the seed too deep when covering it. After watering it, place it in a little heat until the seed begins to germinate, when it should be removed to a cold frame, where it ought to be kept rather close for a few days, so that it does not receive a check. Here, if the weather is at all fine, they will grow very fast, soon requiring to be put singly into small pots, which should be done whenever they are large enough to handle safely, replacing them in the same quarters, shading them from the sun till they have taken with the shift. After this they will make rapid growths and require another shift, which should be given before the roots get matted round the side of the pots. If allowed to become pot-bound, they throw up weaker flower-spikes before the proper time. At this shift good strong loam, with leaf-mould and a little old manure, will be a good mixture. This shifting-time will be about the middle of June. If a few lights of a pit can be spared, plunge them in coal-ashes, having the lights ready to put on in times of heavy rains. Let them have regular attention in watering all through the summer, with syringing in the evenings after bright days, always giving a size larger pot when wanted until the end of August, when a shift then should carry them through the winter. A good place to winter them in is a pit or house where frost is just kept out. Their greatest danger now is from damp. Instead of standing them on the ground, let them be placed on a trellis-work or pots turned upside-down, that the water which they require may pass freely away, and allow air to play round the plant. They will stand here until the following spring. About April let all be examined, to see in what state the roots are. As soon as they show signs of fresh growth, the plants should be put into the pots they are intended to bloom in, unless it be a few of the smallest, which may

Digitized by Google

receive another shift a month later to give a succession of bloom. Whenever the pot is full of roots give liberal waterings with liquid manure, using the syringe freely all along till they are taken into the show-house, when a stick should be put to each spike to keep it upright. The white variety is a good companion to the above, requiring the same treatment. There are several dwarf varieties well worth cultivation in pots for the autumn.

THE ANTIRRHINUM.

Antirrhinums are useful autumn flowering-plants; many of the striped varieties, when grown in pots, are very pretty and effective. If they do not bloom continuously in summer, they may be said to have two blooming seasons. The main spike blooms in summer, and the branchlets from it come into bloom later on in the autumn; and this is the time they are of most service, when other flowers begin to get scarce. When raised from seed, encourage them to make strong and early growths, shifting them on into larger pots as required in the early part of the season. When pricking them off at first from the seed-pan, put them into a small pot to be all grown together; and in 8-inch pots they make a large plant by autumn. As soon as the main spike has done flowering, cut it away, then the side shoots will soon come up into flower. This lot will be found invaluable for late use for cutting from. If placed in a cold frame where plenty of air can be given, they last much longer than when exposed to all weathers.

TROPŒOLUMS.

Many of the Tropœolums are most useful for growing, to come in late in autumn for the various phases of decoration, and also cutting from. T. Bothwelliana is the best we know for this purpose, being a strong rapid grower, with long footstalks, so that it can be picked and sent in the cut-flower baskets. It is an excellent variety for planting on any vacant spaces, on walls or old tree-stumps, or to cover blanks anywhere. After bedding-out, reserve a quantity to pot into 11-inch pots, using good rich compost, with ample drainage, putting three plants in each pot: then put a trellis to each pot about 4 feet high, so that the shoots may be tied regular as required, picking off all the blooms as they make their appearance through the summer until September. Up to this time, plunge them out of doors in a convenient place, so that they will not be neglected at any time. When taken in from frost the plants will be full of bloom-buds, which, if put into a temperature of 55°, will throw a great quantity of flowers. Putting half into heat at once, and the remainder where frost is just excluded,

Digitized by Google

for three weeks later before applying heat, will prolong the season of blooming. Tricolorum, if attended to, will soon be in great beauty. This variety is of easy culture, but requires constant attention in fastening it to the trellis, or the shoots soon get intertwined if allowed to ramble. It lasts a long time in the greenhouse. When done flowering, gradually dry it off, then set the pots in a cool place until another season. A. H. T.

LIBONIA FLORIBUNDA.

This is now a well-known and useful plant for winter decoration, which abundantly justifies its name. It, like the rest of its family the Acanthads, requires plenty of feeding to do it well. Unless well attended to, it soon gets starved in pots, especially when the plants get of a large size. Under glass, in a close moist atmosphere, we have seen many plants of it go to growth and not flower at all; it is therefore reckoned best to grow it early and ripen its wood after. The past season, however, we have adopted altogether a different plan with the most perfect success. Having about five dozen plants in 6-inch pots which had flowered last winter, and had been stowed away after coming out of the conservatory in a cool pit until the first week in June, we determined to plant them out in the open air, when such things as Solanums, Salvias, and others were being planted out for the summer. An empty earth-pit was to spare, in which celery had been grown on in spring, and which contained a good depth of very rich stuff. Into this the Libonias were turned, giving them at the time plenty of room, and covering them with a few old broken lights, which, however, were entirely removed in a few weeks. The plants soon began to root and show signs of vigorous growth, which continued all the summer. By the first week in September they were grown much too close, and were studded all over with their little flower spikes and buds: they were potted up along with the Solanums, and stood in a cool peach-house, where they still remain with abundance of air night and day, and are fast coming into full bloom. Some plants not potted and left in the pit stood frost without injury, which killed French beans and Dahlias on the 21st September. Cuttings struck in February and grown on in 3-inch pots will be a nice size to plant out about the first week in June, and we quite think any protection after is unnecessary. They will require abundance of water in dry weather, and they will grow in any garden-soil. The Squire's Gardener.

Digitized by Google

FIG-CULTURE.

NO. III.

Pruning and Pinching.—When the trees have shed their leaves, they should be kept comparatively dry at the root all winter. What pruning is necessary should be performed in winter when they are at rest. Very little pruning will, however, suffice, if their summer growth have been produced and regulated according to the foregoing directions. There will be the main stems, with the cordon branches, that were established the previous year, when the young plants were in pots, now extending right and left to about 4 feet, with their lateral growths at regular intervals, and the cordon growths produced this season, of which I am now treating. My practice in pruning Figs thus trained horizontally, and from which two crops are to be annually ripened, differs somewhat from that usually pursued, and may be described as a mixture of Vine-pruning on the close spur system and ordinary Peach-pruning. The accompanying woodcut, fig. 5, will illustrate

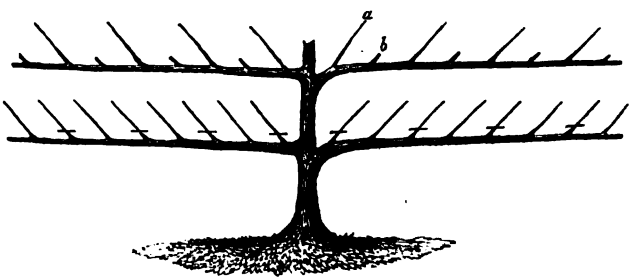


FIG. 6.

at a glance what I mean by this, and serve for the rule which I consider the best in Fig-pruning generally. It may be explained to the tyro, that the first crop of fruit produced in Fig-forcing is got from the young wood of the previous summer's growth; and the second, which ripens generally in September and October, from the young growths of the same summer, and which are produced contemporaneous with the first crop of fruit on the previous season's growths. In order to have a regular crop over all the tree at these two seasons, this habit must be borne in mind, and the pruning performed accordingly, so that the trees may be regularly furnished with these two sets of growths. According to the illustration, there are the main or cordon branches furnished with a set of lateral fruit-bearing growths. I recommend that every alternate lateral be pruned back to an eye, as at *b*, as is generally practised with the Vine. The other shoots are left as the summer-pinching is supposed to have left them, and will, if

Digitized by Google

well ripened and short-jointed, produce a Fig at every bud, especially those near their tops. Those cut back may force more than one eye; when such is the case, all should be rubbed off but one, to be stopped by pinching or bruising its point, when it has grown to from 5 to 7 joints, after which stopping it very soon forces a fruit from the axils of the leaves, which fruit ripens in autumn. All attempts at fresh growth beyond these autumn fruits should be rubbed off as they make their appearance. In the case of the previous year's wood bearing the first or early crop, a couple of joints of young growth is all that should be allowed. In the case of a well-established tree, with its roots thoroughly under control and in a fertile state, this system of pruning and summer-pinching, it can easily be seen, directs the efforts of the plant to the production of fruit, and only as much young wood as is necessary for next season's crop. The young wood produced this summer is that on which next season's early crop is produced, so that the early fruit-bearing wood is that which in the winter-pruning is spurred back—*i.e.*, shoot *b* is cut back this year, and shoot *a* the next.

The Fig is thus systematically pruned without the too common confusion of a lot of haphazard growths in all directions, either to be lopped off with the knife, causing unnecessary wounds and bleeding, or to be tied up in confused unmeaning bundles, serving no purpose whatever. A little trouble and attention in the way of directing the summer growths to form trees thus into cordon or horizontal leaders, with lateral fruit-bearing growths, to be alternately spurred back, reduces the management, and yearly pruning and pinching, to as simple a routine as that of spur-pruning the Vine, and has great advantages over the system of tying in three times more growths every season than are required to be cut away in winter, sadly mutilating the trees.

Root-Pruning.—For the first few years after young Figs are planted, root-pruning should be as carefully attended to as the training and pruning of the tree itself, otherwise they will not so soon be brought into a fruitful condition. The roots should be seen to at the time of winter-pruning. A trench should be taken out down to the drainage round each tree at about 3½ feet from the stems, and the roots carefully disentangled, and lifted back to within 20 inches of the stem, preserving all the finer fibry roots, and cutting back those that are strong. The second year the same process should be attended to, but not encroaching so near the stem. In my own experience I have found that, in limited and not too rich borders, two root-prunings have been sufficient to bring the trees into free bearing, unless it be some of the more gross-growing and generally the least desirable sorts. Such free-fruiting and desirable varieties as Brown

Digitized by Google

Turkey, Gros Vert, and Raby Castle can be brought into a free-bearing condition by two root-prunings, with the system of pruning and pinching the tops that has been recommended.

Before treating of the general management in forcing the Fig so as to keep up a supply of fruit from May till the beginning of winter, I will now refer to Figs in pots, as they form an important feature especially in the very early forcing of the Fig.

Figs in Pots.—There is perhaps no other fruit-bearing bush or tree that is more manageable and so really productive when confined to pots as the Fig. In this way it is most serviceable and easily cultivated throughout the season. But it is especially when very early forcing is required that plants in pots are to be recommended. They



Fig. 7.

can also be made to bear in a very young and small state. I have struck them from eyes in February, and by shifting and pinching have formed comparatively large heads on a clear stem in 9-inch pots, with a good sprinkling of ripe fruit on them late in the autumn of the same year. This refers to Gros Vert and one or two of the most free-fruiting varieties. For the propagation of Figs to be

Digitized by Google

permanently cultivated in pots, I refer to the directions already given under that head, as the process does not differ in any way from that recommended in the case of plants for planting in borders. The training, however, is different, inasmuch as the object desired in the case of Figs in pots is a plant with a bush-like head of bearing branches and twigs. As in the case of plants for borders, plants with clean single stems, about a foot high, are best for pots—such plants may be described as dwarf standards.

Training, Pruning, &c.—Fig. 7, engraved from a photograph, represents a plant four years old from the cutting in an 11-inch pot, bearing its second crop of fruit of the same season. It bore two heavy crops the previous year. To form such a plant, the point was pinched out of the cutting when about a foot high. When the several shoots with which it broke away into growth were long and strong enough to bear it, they were occasionally bent downwards with the hand; and when they had grown 6 or 7 inches long, they had the terminal bud pinched out of them, and these shoots started away again with generally two growths. The plants were then shifted into 8-inch pots, and encouraged to grow in a warm moist house with plenty of light and air. After being well ripened they were pruned back, each shoot to three eyes, except some which were short and stubby enough not to require it. The following spring it was, along with some dozens of others—some larger and some less, but all the same age—shifted into 11-inch pots after they began to grow, and they bore two good crops, and have made plants that, with top-dressing and manure-watering, would continue for several years to bear fine fruits in the same pots. Still it is desirable to give them a small annual shift until they are put into 15-inch pots, which are large enough for any purpose. After they get into pots of the last-named size, and when they require stimulants in the way of fresh soil, the best way is to partially shake them out about the latter end of October, and cut back some of the st ‹ ngest roots and pot them in fresh soil. By this means they can be kept in excellent bearing condition for many years.

After they begin to bear they require next to no winter-pruning. It should all be done by summer-pinching, removing entirely superfluous growths that would crowd the plants,—pinching those that are left at every third or fourth joint. Varieties vary very much in their habit of growth; some make grosser and longer-jointed wood than others, and require to be cut back after the leaves are shed. Such varieties, as a rule, are not so useful for pot-culture as the more stubby growers, and they seldom yield a satisfactory first crop, but bear chiefly a second crop on the young wood. These varieties are of course to be avoided when early fruit is desired, and it is for early crops that

Digitized by Google

pot Figs are especially valuable. Always in winter-pruning, wherever it is necessary, leave untouched all short stubby growths with a cluster of buds near their tops. These are the most fruitful parts of the trees, and are freely produced by well-established trees when bearing heavy crops.

While the plants are young and being trained, it is often necessary, in order to form the heads into proper symmetry, to have recourse to staking and tying the shoots or branches in their proper places. After the plants get established, and what in pot-culture may be termed full grown, neither this nor much pruning is required beyond cutting out old wood to make room for new as occasion may require.

Soil for Figs in Pots.—The soil for plants in pots should be richer than has been recommended for borders. Two-thirds of rather a strong loam, with a third of horse-droppings and a little bone-meal, answers well in all pottings after the trees have arrived at a fruit-bearing condition. I have sometimes plunged the pots in borders of soil for summer and autumn fruiting, and let them root through into the border, but do not recommend the practice. I approve of plunging the pots, but not of letting the roots leave the pots, and it should always be prevented. It induces the active roots to leave the pots where they are regularly fed, and causes gross shoots to be formed at the expense of the fruit and the general growth of the other parts of the trees. This applies more particularly to young growing trees. In the case of older and free-bearing trees there is less objection to the practice.

PRIZE FOR GREENHOUSE PLANTS.

HAVING observed of late that very few gentleman-gardeners sent plants to our local shows, and finding that they complained of the time and trouble that were required to get up specimen plants, it occurred to me that a prize which would bring out the produce of a well-conducted greenhouse and stove would be a popular measure. Such a prize was offered for the best collection of plants, arranged for effect, and standing on a space 6 feet by 6. We had at once eight competitors. My own plants, which gained the first prize, were taken out of the houses without any preparation whatever. From forty to fifty plants were taken. The effect of the eight sets of plants was very striking. Every gardener to whom it has been mentioned has liked the idea, and I wish to make it public, as I believe it will tend to improve local shows.—I remain, &c.,

A. LESLIE MELVILLE.

BRANSTON HALL, LINCOLN.

Digitized by Google

A PLEA FOR ANNUALS.

If a gardener were to sow a bed of Cauliflower, Cabbage, Lettuce, or a bed or row of many other vegetables, so thickly that the young plants came up at not more than an inch apart, and allowed them to grow in their seedling-bed all the season, and then condemned them as worthless, he would just be pursuing as unreasonable a practice as is, in more than five cases out of every ten, practised in the case of nearly all the annuals used for border decoration.

Nor does this supposed ill-treatment of vegetables fully represent the want of cultivation which has so long existed in the case of annual flowering-plants. Not only are they sown very thickly in patches or circles, and never thinned, but they are far too often sown in mixed borders, and in the margins of shrubbery borders, the soil of which has not undergone the process of either digging or manuring, according to the acknowledged rules of good cultivation, for years in succession. Is it any wonder, then, that annuals have in so many cases been looked upon as so much rubbish, not worthy of a position where a display of flowers is the object of the horticulturist? Or is this estimate of them correct? We think not: and every year only serves to deepen the conviction in our mind that a great many annuals are well worthy of receiving far better treatment at the hands of gardeners than they have yet received. There are a few of them, such as Stocks, Asters, Marigolds, and one or two more, that we do take the trouble to thin out, or to transplant into well and deeply worked and manured soils; and it may fairly be said that they deserve to be so treated. Yet the Aster, the Marigold, and the Stock are lumpy and inelegant plants compared to many of our more hardy annuals; and if those that we have named were not better treated than is the general ruck of annuals, we have no hesitation in saying that they would be much more miserable-looking objects than many that receive but one-fourth of the care.

It is not necessary to occupy either time or space in pointing out the extreme and delicate beauty and very elegant habit of many of the commonest hardy annuals; and if they received half the cultivation that has been bestowed on Calceolarias, Verbenas, &c. &c., they would have long ere now held a higher position in our gardens than they do. If we look at some of them in the light of bedding-plants, and single out, for instance, Nemophila insignis, it can quite warrantably be said of it that it is the finest blue bedding-plant in cultivation. Take its extremely lively blue colour, its duration of flowering, and its effect at a distance, and no blue Lobelia or Ageratum that ever we have seen can approach it as a bedding-plant. But, then, to

Digitized by Google

enable it to deserve the reputation of these qualities, it must be cultivated,—that is, the ground must be deeply dug and well manured, and the young seedlings thinned out to 6 inches apart, before they become drawn and spoilt in the bed. Thus managed, it blooms all the latter part of summer, and on to November, and 10° frost do not injure its blooms. Take, again, the beautiful white Collinsia, the Candytufts, Venus's Looking-Glass, &c., and they too, if *cultivated*, continue three times longer in bloom than they do under their ordinary neglect and mismanagement. There are at least a score of hardy annuals that can be matched against as many of the varieties of plants on which so much care and cultivation has been bestowed, for bedding purposes alone; and that, too, with half the labour and expense in the one case that is required in the other.

The complaint against these annuals has been, "Oh, they will not last in bloom for more than a few weeks!" and thus they have been condemned without ever having received a fair trial. No doubt, in poor sandy soils and hot dry parts of the country, their career is shorter; but taking the range of the kingdom north of York, we are certain that, with good cultivation, many annuals would soon rise into favour. Let any one of our readers try a bed or border of the blue and white Nemophila, cultivated as we have indicated, against the best blue and white Lobelias extant, and, in a damp climate especially, we will almost guarantee that he will grow fewer Lobelias and more Nemophilas ever afterwards. Of course the same treatment in mixed borders would bring annuals into a more prominent position in them. What can be more beautiful than some of the Lupins, or striking than Love-lies-bleeding, when it attains the height of 4 feet, with its long ropes of inflorescence reaching gracefully to the ground? Yet one seldom sees such annuals as these represent, except in patches of miserably drawn weaklings, unless, indeed, it be when a single seed happens to stray away, where it can, in single-blessedness, develop its beauties.

D. T.

ON PLANTING A MIXED FLOWER-BORDER 32 YARDS LONG AND 1 YARD WIDE.

The background of this border is an espalier covered with fruit-trees; these therefore must be taken into consideration both in making a selection of plants and conducting the operations preparatory to planting. It would have been interesting to know whether the trees are planted on the side of the espalier next the border or on the opposite side. In the latter case a more perfect and complete preparation can be made for the flowers without check or detriment to the fruit-trees, because the border could be trenched to almost its full width, and trenching is a very important—I had almost said essential—preparation for

Digitized by Google

laying down a border that is to be filled mainly with plants of a permanent kind. In the other case, trenching a border so narrow, in which the roots of fruit-trees are spread in all directions, is impracticable without inflicting serious injury on the trees, so that digging over the surface-spit is all that may with safety be done in preparation for the reception of the plants. Were it practicable, I would advise your correspondent to lift his trees in the event of their being planted in the border, and replant them on the other side of the espalier; he would then be enabled to thoroughly trench the border to its full width. It will be perfectly safe to lift the trees if they are young and vigorous, and care is taken to save all the roots, the small fibrous ones particularly, using a fork, not a spade, to clear the earth gradually away from them; but if the trees are old, and have been undisturbed for some years, they will be best left alone. In either case no time should now be lost in getting the digging or trenching done, so that the planting may be finished before winter fairly sets in with its impediments to outdoor work of this kind. A little well-rotted manure may be incorporated with the soil in the process of trenching or digging, and the border should be allowed to settle for a few days before the work of planting is set about.

If the fruit-trees happen to be planted on the border side of the espalier, and must remain there, there will be room for only two rows of flowers. A clear space of not less than 16 inches must be left between the espalier and the back line of flowers, for the benefit of the trees and the convenience of attending to the pruning, fruit-gathering, &c. The first row should be planted at 6 inches from the front edge of the border, and the second at 20 inches, and should there be room for a third, as there will be if the roots of the trees do not occupy the border, let it be formed of the plants named in the list below for the third row, and be planted at the distance of 9 inches from the espalier, while the middle one may be formed from the list especially selected for it. The distance apart at which the plants may be placed in the rows will be decided by the following considerations: first, as to whether hardy perennial plants are to be employed solely or to a preponderating extent, or are to be alternated with annuals or bedding plants; and, secondly, by the individual bulk it may be desired the plants should attain. Large full-developed plants are more pleasing, and their effect is more lasting than smaller ones, be they annuals or perennials. The majority of the plants named in the lists below require a circle of from 1 foot to 1½ feet in diameter in which to develop themselves fully. Owing to the narrowness of the border, the rows, whether two only or three may be accommodated, cannot be placed so wide apart as 18 inches; but if the centre of the first row is fixed at 7 inches from the front edge of the border, and that of the second, if to be followed by a third, at 17 inches, and the third at 27 inches from the edge, they will each have a fair amount of growing-room. In the case of only two rows being adopted, take the centre of the first at 6 inches from the edge, and that of the second at 20 inches, and this will leave sufficient space in front of the trees to admit of their being properly attended to.

A few words will be necessary on the subject of arranging the flowers of the different seasons, so that the border may look its best at all times of the year. Your correspondent does not expressly say that he desires his border to be filled with hardy flowers, but it may be inferred that such is his desire, and that all the plants to be used should be easy to procure either by roots or seeds, and not difficult to maintain after they are in possession. These points have been kept in view in making the following selections of perennial, bulbous, and annual flowers; and I will now endeavour to show how the planting should be done so

Digitized by Google

as to produce a good and continuous effect the year round as far as possible with such materials.

Taking the front line first for consideration, let a spring flower, say Alyssum saxatile, be planted at the first point; at the second a summer flower, as Campanula pumila alba; at the third an autumn flower, as Sedum spurium; and at the fourth another spring flower, as Anemone stellata fulgens. Thus 2 yards of the length of the row are filled with plants that are to be regarded as permanent. But these are incapable of keeping up a continuous display of colour by themselves, and therefore the spaces between them must be planted or sown with bulbs and other plants to compensate for the shortcomings of the permanent ones. Thus, in the first space plant a clump of Crocus speciosus to bloom in autumn; and to sustain the show during summer, sow in April a pinch of Nemophila insignis. In the second space plant a clump of Snowdrop, and plant alongside of it in April one of the yellow bedding Violas, which will continue to bloom through the summer on to Christmas. In the third space fill in a clump of Scilla bifolia, and in April slip a plant of Viola cornuta perfection in beside it, which, like its yellow neighbour, will blossom till Christmas. In some such manner as that above described let the front row be planted, alternating the spring, summer, and autumn perennials with each other, and using the spring and autumn bulbous plants; the annuals and the other temporary occupants in the spaces between so as to complement each other. It is intended that the plants should meet each other or quite fill their spaces, and the 9 inches provided for each in the foregoing arrangement will be found quite sufficient for their fair development in the front row. The second row, if there are to be three, may be planted at the permanent points with the several varieties of Scilla nutans, S. campanulata, early dwarf Tulips, the various Narcissus, &c., to be found in the list for this purpose. Between these place dwarf sorts of Antirrhinums and Wallflowers and Pinks of all the showy and free-flowering kinds, including the varieties of the Mule pink, which, along with others named in the selection below, will help to carry a good display well through summer, while as the bulbous plants die off, Ten-week Stocks and dwarf German Asters may be planted, and other suitable annuals be sown in their place to carry it on to winter. The third row should have a liberal number of dwarf Pentstemons and Phloxes placed at short regular distances along its length, alternating with other early and late summer and autumn perennials at the permanent points. In the spaces between, throughout the line, English Irises, Tulipa, Gesneriana, double and single Wallflowers, Biennial Stocks, &c., may be employed to give a spring show. If a liberal sprinkling of Lobelias, Verbenas, and other dwarf bedding-plants can be planted in the front row, Calceolarias and dwarf scarlet and variegated Geraniums in the second, and taller Geraniums, dwarf Dahlias, &c., in the third, the variety and effect will be enhanced.

Lists of Flowers for Mixed Border.

FIRST ROW.

Spring-flowering Perennials—

Alyssum saxatile, yellow.
Aubrietia græca, purple.
Anemone stellata fulgens, brilliant crimson.
Anemone coronaria, various.
Iberis corifolia, white
Erica carnea, in red and white, various.
Hepaticas, white, red and blue.
Primroses, double-purple, lilac, white and yellow.
Phlox reptans, purplish rose.
Crocuses, the vernal sorts in great variety, including C. imperati, and C. Susianus, two of the earliest flowering.
Eranthis hyemalis, yellow.
Muscari botryoides, blue.
" racemosum, blue.

Digitized by Google

Scilla bifolia, deep blue.
" sibirica, porcelain.
Tulips, the Van Thol varieties.

Summer-flowering Perennials—

Dwarf Pinks.
Pansies, especially the sorts in various colours.
Aster alpinus, blue.
Achillea tomentosa, yellow.
Silene Schafta, purplish rose.
Saponaria ocymoides, pink.
Saxifraga longifolia, white.
" cotyledon, white.
Lithospermum prostratum, blue.
Campanula pumila, blue.
" " alba, white.
Viola amœna, purple.
" cornuta, var. Perfection, mauve.
" lutea hybrids, named in the trade "Bedding Violets," in great variety of colour. These, along with bedding Pansies, should be used in abundance for both summer, autumn, and spring display.

Autumn-flowering Perennials—

Acæna microphylla, crimson.
Erica vulgaris, in variety.
" cinerea, in variety.
Coronilla iberica, yellow.
Campanula rotundifolia, blue.
" " alba, white.

Bulbs for Autumn.

Crocus speciosus, blue
" byzantinus, blue.
" nudiflorus, purple.
" sativus, violet.
Sternbergia lutea, yellow.
Zephyranthes candida, white.

SECOND ROW.

Spring Flowers.

Iris Germanica, in variety.
" Xiphioides, in variety.
Narcissus poeticus, white, single and double.
Narcissus Pseudo-narcissus, yellow, single and double.
Scilla campanulata, in variety.
" nutans, in variety.
Tulips, in variety.
Fritillarias, dwarf kinds.
Wallflowers, dwarf, in variety.

Summer Flowers.

Antirrhinums, various.
Anthericum liliastrum, white.
Aquilegia alpina, blue and white.
Caltha palustris, fl. pl., yellow.
Dianthus barbatus (Sweet William), in variety, single and double.
Hemerocallis flava, yellow.
Lychius Viscaria, fl. pl., purplish red.
" " alba, fl. pl., white.
" flos-cuculi, fl. pl., rose.
" " alba, fl. pl., white.
Nepeta Mussini, lavender.
Ranunculus aconitifolius, fl. pl., white.
" acris, fl. pl., yellow.

Annuals.

Linum grandiflorum, crimson.
Bartonia aurea, yellow.
Campanula Loreyi, blue.
Convolvulus tricolor, blue.
" " alba, white.
Godetia lepida, deep purplish red.
Whitlavia grandiflora, deep blue.
Tenweek Stocks, various.

THIRD ROW.

Spring Flowers.

Tulipa Gesneriana, various.
" sylvestris, yellow.
Wallflowers, tall, single and double, in variety.
Stocks, Biennial sorts, in variety, from sowings of previous June.

Summer and Autumn Flowers.

Anemone Japonica, rose.
" " alba, white.
Chelone obliqua, purplish-rose.
Carnations, various.
Pentstemon, dwarf sorts, in variety.
Phloxes, dwarf sorts, in variety.
Phygelius capensis, crimson.
Dracocephalum Ruyschianum, blue.
Symphytum bohemicum, crimson.
" caucasicum, blue.
Lychuis chalcedonica, fl. pl., scarlet.
Centranthus ruber, red.
Statice latifolia, blue.
Spiræa filipendula, fl. pl., white.
Stokesia cyanea, blue.

FIRST ROW.

Annuals for sowing at different times:—
In September to bloom in spring; in March or April for early summer; and in May or June for autumn.
Alyssum maritinum, white.
Collinsia verna, purple and white.
Limnanthes Douglassii, yellow and white.
Lupinus nanus, blue.
" " albus, white.
Nemophila insignis, blue.
" maculata, white, blotched purple.
Virginian stock, rose and white.

W. S.

Digitized by Google

UNDER-GARDENERS.

THE qualifications of the much-abused young gardeners have of late years in most of the gardening periodicals been well ventilated, the cause of their difficulties and shortcomings being placed in most cases on the shoulders of the young men themselves.

While there is so much written to dispirit them, and so little to encourage them, we need not wonder if energy and perseverance are lacking among the fraternity. The wonder is, with so much to blunt their best feelings, and the small remuneration they receive for their labour compared with other workmen, that we find so many really good men to fill the vacancies that now and again have to be filled up.

What your correspondent (a head-gardener) writes in regard to apprentices, is in many cases too true in England, but scarcely applicable to young gardeners in Scotland, as all and sundry who appear on a "term-day" looking for a "journeyman's place" are in possession of an "apprentice character," certifying that they have been three years in a garden under training. However, this is by no means a warrant that they have been trained.

In England the rule is different. Young gardeners generally rise as it were piecemeal. The word "apprentice" or "journeyman" is practically unknown in the south. I must admit that the advantages which the Scotch lads possess with their "apprentice characters" over the Englishmen without them, is more nominal than real;—just in the same way as college-taught preachers stand in relation to men who rely on a stronger Power which has called them to the work, than the mere machinery of a college. I do not despise the latter, as it is of valuable assistance to those who are in earnest, but the reverse to the youth who is training himself merely to earn his bread.

The "apprenticeship" is valuable to the lad who has chosen the profession through love to it; but where it is only to work for what he can get, a position of distinction can hardly be attained by merit.

I have always found the English foreman or journeyman equal to his brother Scot. My experience has been pretty equally divided in both countries, and certainly the best men I know never were fettered with serving a stated time under the name of apprenticeship.

It is quite true that many have been unfortunate enough to pass through the ordeal of a "doing odd jobs about the house;" and the love for gardening which many such youths possess has given a stimulus to their energies which has raised them to the highest positions in their professions, and they are now holding situations of trust, with great credit to themselves, and giving great satisfaction to their employers. One of the most distinguished English gardeners of the present day (an old shopmate of my own) began "a doin' odd jobs" in a garden and about roads, &c. He afterwards became a gamekeeper (a distinguished poacher-hunter), and lived some time as a footman, but all the time had a liking for his old love, and went back to Miss Hortus, and advanced with such vigour that he almost bade defiance to all his compeers, rising step by step to the position which he now holds.

It is well known that the greater part of the ordinary work in English gardens is performed by common labourers, who have been at such employment from their boyhood, and in many great places no more than two or three young men are kept on the place; and if the same system was carried out to some extent in Scotland, there would be fewer complaints of a superabundance of gardeners. But to return to apprenticeships. I believe such are legitimate and

Digitized by Google

right, and by far the most satisfactory way to acquire the rudimentary knowledge of any profession. But, on the other hand, with young gardeners, I say it is decidedly wrong to raise up youths and send them adrift on the world, after spending three years, without having a chance of gaining any knowledge of their profession beyond mere drudgery in a garden, such as collecting leaves, wheeling a barrow, swinging a scythe, and maybe having helped to clean out a stokehole, and assisted to make a hotbed (an operation very imperfectly understood nowadays by young gardeners). It is highly proper that all common work should be understood practically, but to allow the matter to rest there is discreditable to head-gardeners, if not dishonest. If head-gardeners do not consider it their duty to teach youths placed under them all the branches of gardening under their care, and at the end of three years send them to shift for themselves, what can be expected but half-taught men at the end of their three years? A nurseryman may push them forward, but it happens that the army, or labour in a factory, is as often their lot. At one time gardeners would almost as soon starve as leave their profession; but times are now changed, and the highest figure from any source commands their services. If a man is wanted between March and November, he cannot be had for love or money. The question then arises, Where are all those fine fellows who were seen at the nurseryman's shop-doors on the term-day in November? (We really have seen scores of as respectable-looking men as would be found among any class of employés.) They have left gardening in disgust, and gone to employment where they will require to do less physically or mentally, and get double the payment for it.

Apprentice-fees are often paid for instruction; and right enough, too, that it should be. If I had a son who wished to be a gardener (I trust that I shall be more fortunate), I would insist on paying a premium, but would be greatly dissatisfied if it had to be paid for drudgery only. I would expect that for the fee a thorough training would be given.

Three years is too short to fit a youth to be able to take his part in the general routine of garden-work—why not give a fourth, and pay according to the lad's merits? this would be more satisfactory than sending to a nursery and getting a man perhaps not so good as the one on hand. I find that it takes me four years to send out a young man anything like creditable; and instead of my receiving any fees, the youth gives a few hours' overtime during the Grape-thinning season, or when any other work is pressing; and by his taking an active part in work requiring skill and care, the services rendered become profitable to both employer and employé.

How often do we meet young men, when they are being engaged, replying to certain questions, "The maister did a' that himsel." A nursery-manager told me some time ago that when they wanted a border neatly dug, or tastefully arranged, they had to send their Irish labourers to do it, as the young gardeners were seldom able to do the work satisfactorily.

Regarding the young gardeners' education we read so much about, I fear that the head-gardeners in all cases are not doing their best in this matter also. Are proper books supplied at the employers' expense, the leading gardening periodicals purchased for their use, and everything done to point out the evils resulting from the trashy light literature which is sent out by the ton from publishers' shops? I regret to say that the young gardeners' boxes are not weighty with books of a useful character as formerly was the case, when the box of books was the best part of their belongings.

Are habits of "decency and order" always taught, and are proprietors asked

Digitized by Google

to keep their young gardeners' lodgings in comfortable and orderly condition? I have seldom known employers object to keeping their young gardeners' rooms in good repair, &c., when the matter was well represented to them. Promotion according to merit is not generally kept in view. It is surprising to observe what stimulus this gives to rising men; and some of the most distinguished gardeners of the present time can in a great measure attribute their success to systematic promotion of their men. The evils of keeping too many apprentices and journeymen on places where gardening of a high character is not practised, too little interest in the welfare of the workmen, and wages being insignificant in proportion to their duties, are a summary of the evils which prepare men to accept the wretched remuneration they receive when they become head-gardeners. Employers expect intelligence, respectability, and trustworthiness in a much larger proportion from their gardeners than from any other of their employés, but proportionate wages are out of the question. But this brings one on to fresh ground. I have had nothing to say on the wage question, but may yet spare a little ink on that matter. M. Temple.

A PLEA FOR THE PANSY AS A BEDDING-PLANT.

That the Pansy during late years has not received more than the attention due to it, no one will deny. Great as have been the strides of flower-gardening during those last twenty years, some of those strides have, I think, been too great, in having left somewhat overlooked such a plant as the Pansy. Surely it is not because there is any difficulty in propagating it, or preserving it in life during the winter months, or that it requires any favoured spot to bring it to perfection. It is indeed the poor man's flower. Its enjoyment can be shared alike by the peasant and the prince. An east border, the back of a north wall, the cottager's plot or shubbery, are all alike available for its growth. Of course there are situations more favourable to it than others. Planted in a border exposed to the sun, which has been twice turned over during the season, and well manured with dung or leaf-mould, nothing can excel the yellow, blue, and white Pansies for a show. But one reason can there be given for its having fallen into the rear—viz., The horticultural world has, like the other worlds to follow, "that fickle thing that's always on the wing"—fashion. The custom now in vogue is the massing of Geraniums, Verbenas, Calceolarias, Gazania, &c., to produce the finest effect, at which few ever excel. But what comparison is there between the shortlived beauty of a bed of Calceolarias and one of yellow Pansy or Viola? or who would think of comparing an edging composed of plants of Gazania and Blue Lobelia time about, and the same of Cloth of Gold and Imperial Blue Pansy, especially in the past unprecedentedly wet season? The drowned and weedy appearance of the Lobelia and Gazania will not bear looking at after the Pansies.

The present system of flower-gardening cannot be comfortably carried on without an amount of glass which is not to be found in many places. Very often the vinery borders are covered with a few makeshift temporary erections for the accommodation of bedding-plants, which must, of course, hinder the admission of light and air, two very essential things for keeping the border in a healthy condition. Were more plants of the Pansy tribe used, a great deal of this dangerous work—for such it must be to Vine-roots—would be done away with, besides the extra care and attention which of necessity attend the present system of bedding out.

Digitized by Google

Apart from the ease with which the Pansy can be propagated, and the fine effect that it produces when planted out, there is still another point in its favour which constitutes it an invaluable plant for the decoration of our flower-gardens—that is, the long duration of its blooming season. If planted out in the months of April or May, it will begin to flower then, and will keep on flowering, and have a fine effect, until the end of the year, and this is what makes it such a valuable plant for bedding-out purposes. At the first touch of frost the beauty of our Geraniums and Verbenas, &c., is gone, and this at a time of year when they are not likely to recover again; but the Pansy, when the sun comes out, rears its head and looks as fine and fresh as ever, even after 10° of frost. Where spring-gardening is carried on, the Pansy is not to be excelled: few plants can stand March frosts or April showers so well.

As a bedding plant, then, the Pansy contains all the necessary qualities to render it emphatically a useful plant. It is hardy, and will succeed in almost any situation; is free in growth and easily propagated; and it produces its flowers in great quantities at a season of the year when they are most appreciated. The Pansy, too, is exceedingly valuable on account of the variety of colour that can be obtained in them. A garden well laid out with Pansies would have a fine appearance during the early and late months of the year, as it is among the first of flowers to open in early spring, and the last to leave us in autumn.

That such a plant as this is not more extensively grown is a wonder, and a few remarks on its cultivation may be useful to some of your readers.

With a cold frame or a few hand-lights any one may easily raise a stock of Pansies. They may be raised either from seed or by cuttings, or by dividing the old plants; but plants from cuttings are best. When variety is desired, they may be hybridised, and raised from seed. Probably there is no plant which exemplifies the powers of cultivation in improving on natural forms so well as the Pansy—the common but beautiful little Viola tricolor of our native woods and meadows being the origin of all the splendid varieties which we now possess. From seed they may be raised in numberless varieties, but when it is desired to increase particular varieties, it must be done by cuttings, which may be done very successfully in the following manner:—

No better place could be afforded the cuttings than a frame in a somewhat sheltered position. Wherever the frame is placed, care should be taken that it is well drained. Perfect drainage may be secured by placing a layer of ashes 4 or 5 inches thick in the bottom of the frame. The soil most suitable for the Pansy is loam, enriched by admixtures of leaf-mould and sand in equal proportions, but common garden-soil does pretty well. With these ingredients mixed together, and beat firmly down with the back of a spade, it is ready for the cuttings.

In selecting the cuttings, they should be taken off the side-shoots, where you will generally find good sound cuttings, and several of them with roots at them. Avoid all those that are hollow in the centre, as they never do well. In taking them off, the small ones should be slipped off and the end of the cutting cut square. When taken off in this manner they are harder at the bottoms, and not so liable to damp off. In making those that are not slipped off, four joints are quite sufficient to leave. Avoid long cuttings having long wiry stems and many leaves. Two inches between the plants and 3 inches between the rows will be plenty of room for them, as they will not grow much till planted out. After they are put in, give a watering through a rose to settle the soil about them, and cover them with ashes. Shade during bright sunshine, which is, however, seldom needed at this time of the year. Keep close during the day; and with a little air left on at night to prevent their damping, they will soon take root. During the

Digitized by Google

winter months they will require to be gone over once or twice, and all dead leaves picked off, and the surface of the soil stirred up to prevent its becoming green and unhealthy. Whatever water is required should be given them on bright mornings: inattention to this matter is often the cause of failure. When shut up wet, some sorts are sure to mildew and damp. On every favourable occasion fresh air should be admitted, and whenever there is any signs of mildew, they should be sprinkled over with sulphur. It is most essential to the Pansy that it should be protected from an excess of moisture during the winter months. If treated after this manner, they will be nice plants ready for planting out by the month of April, when they will then have some flowers on them, and will thus produce a show from the first, and will keep it up until the month of November. If the Pansy received the same amount of attention as is paid to most bedding plants, it would outstrip a number of them in duration and profusion of blooming.

HEROS.

NOTES ON PLEIONES.

THESE are amongst the most beautiful of autumnal flowering Orchids; and as their successful cultivation is exceedingly simple, we can but wonder that they are not grown by the dozen in those places where a quantity of choice cut-flowers is wanted about this time of the year, or a little earlier, or even later, according to the treatment the plants have received. I said *cut*-flowers, but Pleiones are best pulled gently by the stalk, when they will be found to leave the sheath quite easily. Blooming at this period of the year, their delicate white or rosy-lilac flowers are extremely valuable for bouquets or floral decorations of many other kinds. A small flower of P. maculata, backed by a fresh bit of a Davallia or Adiantum frond, makes a very excellent button-hole flower, although a rather tender one.

In order to flower Pleiones profusely, they must be potted in well-drained pots or flat pans, in a compost of fibrous peat, *living* Sphagnum, a little coarse river-sand and leaf-fibre being added. They should be potted soon after the flowers fade, so with those which have already flowered this is the time to commence operations. After potting they should be placed on a shelf or stage near the glass, and watered judiciously until such time as the young foliage appears, when the quantity of moisture both at the root and in the atmosphere must be increased. Induce them to make a vigorous growth, which they will do best in an intermediate or cool Orchid-house or stove; and then, as the foliage dies down naturally in the autumn, gradually withhold the water-pot, and induce or rather assist them to rest. After resting for a few weeks they will flower freely,—indeed, the flowering of Pleiones is but the natural sequence of their having made a clean and luxuriant summer's growth.

Digitized by Google

The surface of the pots and pans in which these delicate little mountain flowers are grown should be neatly surfaced with fresh *living* Sphagnum, which not only keeps the compost in an equable state of moisture, but also induces the roots to come to the surface of the soil, where they may be seen ramifying, clean and fresh, in all directions.

What could be more simple than to grow these plants, in the culture of which we may take their four phases; thus—1, potting; 2, growing; 3, resting; 4, flowering?—always bearing in mind that the only time they should be on the potting-bench is after the flowers have decayed. The several species vary slightly in their period of flowering, supposing cultural conditions to have been equal. P. Wallichii generally is the harbinger of the genus, hence probably its synonym P. præcox. P. lagenaria, and the lovely white-sepalled P. maculata, come next in profusion. P. humile is one of the most delicate of the group, and is very easily recognised by its dark-green or purple pseudo-bulbs being smooth, or quite free from the warts common to the other species. A newly-introduced species, P. Reichenbachiana, from Rangoon, is yet rare, but has flowered in the neighbourhood of Manchester. A gentleman-amateur to whom I once recommended Pleiones for autumn and winter flowers, smiled incredulously. "Oh!" he said, "but we can't grow them." And I did not wonder when I saw his poor Pleiones, huddled in a hot dry corner of his East-Indian house, with what little foliage they had made disfigured by yellow thrip and red-spider!

This fact reminds me of another a little more interesting. I called at Manley during the last week in October of this year, and saw such a display of Pleiones as would have gladdened the hearts of many enthusiastic Orchid-growers for a fortnight. Pleiones are grown on the common-sense principle at Manley Hall, and most amply do they repay the attention they receive. At the time I called, 790 flowers were fully expanded of P. lagenaria and P. maculata; and on one single pan of the former species I counted 75 perfect flowers, exclusive of many unopened buds. Some may smile incredulously at this statement, but the plants and flowers have been seen by many besides myself, who can attest the truth of the above if necessary. Bear in mind these are actual numbers, the result of careful counting, and not the result of a cursory glance and a rough guess at the truth. It may interest Orchid-growers to hear that Pleiones are grown remarkably well by Mr Kemmery, gardener to E. Wrigley, Esq., Bury, Lancashire; and also by Mr Cully, gardener to E. Salt, Esq., at Ferniehurst—a name, by the by, of almost classic interest amongst both amateur and professional Orchid-cultivators; but until a better-caparisoned champion enters the lists, we must certainly award the palm,

Digitized by Google

both for quantity and excellence, to Mr Petch, who is well known as one of our most enlightened horticulturists.

I hope soon to have a few words to say on two or three collections of Orchids I had the pleasure of seeing when in Scotland—that is, if our worthy Editor cares to find room for my humble opinions.

F. W. B.

GLADIOLI IN POTS FOR THE CONSERVATORY.

There are few subjects that can surpass this plant for indoor decoration when well grown. The purity of its flowers, when shielded with glass, is much enhanced, without in the least lessening the size of its flower-spike, or indeed being hurtful to it in any way. With us they have been a feature in the conservatory over the past three months, and will continue to favour us with fresh beauty while this month lasts (October), as a few of the later sorts are just pushing out their bloom-spikes. One cannot be wrong in having a few dozen plants in pots for late flowering. Should the stages be covered with trained plants, a few introduced amongst them, with their towering spikes, heightens the effect, although the trained plants are in full blossom, and of course they will be the more valuable should flowers be scarce.

General Management.—In considering this I shall be as brief as the importance of the subject will allow, as also for the simple reason that little requires to be suggested with plants of such simple wants. First, then, let there be sufficient of rich fresh loam of moderate consistency chopped up from the turf-heap; allow one-fifth the bulk of old decomposed cow-manure to be well mingled with the loam. Use new or well-washed pots of 7 inches diameter; put a solid inch-and-a-half broken pots into each pot to allow water to pass freely from the soil; commence potting by filling within an inch of the rim with the compost, then insert the bulb. But I should have directed the crocks to be covered with rough turf from the heap before putting in the finer portions of the soil, which is most beneficial when feeding commences. The bulb ought to be properly covered, and the soil very firmly bound about it. Firm potting prevents sudden evaporation, thereby necessitating less watering, too much of which carries off the richer elements of the soil and chills the roots. When the potting is completed, plunge them to their rims in a cold frame amongst coal-ashes or sand, in a sunny aspect, always keeping off the sashes unless in coarse rainy weather. Do not give water for the first eight days, and even then only enough to moisten the upper portion of the soil; but as soon as it is ascertained that roots have been formed, water may be afforded them with freedom, and more frequently as the appearance of the soil may suggest after that stage of their growth. When they have attained the height of 4 inches above the pots, then will be the proper period to allow each pot a stake about 2½ feet long. Tying at this stage should not be omitted. The stems will not yield to be bent without starting them at the junction of the bulb, which, as may be supposed, ruins the plant. Continue to supply water at the root when the surface of the soil gets dry; keep them clear of weeds, and turn the pots occasionally to adjust the growths as they advance in height. Should early flowers be wanted, put on the sashes at nights and in cold days, but never neglecting to admit abundance of air when the sun shines. Feeding with weak manure-water may begin when the flower-spike protrudes through the leaf-shield,

Digitized by Google

the strength of the liquid being 1 lb. pure guano to 40 gallons of rain-water, adding about a half-peck of cow-droppings to the water. This may be applied until the first pair of flowers is developed, when pure water may be used instead. When the flowers are gone, it is of the first importance to reproduce good bulbs for the following year's planting. The most effectual method to adopt is to keep the soil constantly and moderately moist until the stems become yellowish, then dry off. This latest attention must be pursued while they are under glass, or at least in a sunny situation of the garden.

Planting for a Succession.—In considering this, those wanted very early in the succeeding summer should be planted early in February, and placed in a comfortable corner of a greenhouse until all danger of severe frost is passed, when they may be plunged in frames as directed. Those wanted to produce late flowers should be reserved until April, by which time some of the bulbs will have started growth. This, however, is of no importance, on condition that no harm occurs to the young growth. In planting, insert those bulbs deep enough to cover the shoot.

The following varieties have all proved of first-rate quality, cultivated in pots; some are old, and some new:—

Horace Vernet (new).—Rose-crimson, tinted on the higher extremities with scarlet, lower petals centered dense purple, which enters the throat in broken lines, where it joins a body of similar colour.

Bijou.—Is a splendid large flower of pale-pink, grand spike of massive aspect.

Ophias.—Possesses excellent finish, with flowers of bluish-white, sparingly marked by large flakes of common purple; the lower petals are centered purple, breaking from a solid into fine streaks, and extending to near the margin of the corolla.

Minerva (new).—A noble flower of rich violet crimson, flushed with scarlet about the upper portions of the corolla, carminate-rose stone on white ground, fine spike of perfect flowers.

Charles Dickens.—Delicate pink, tinted pale orange, striped carmine-rose, fine.

Alcyon (new).—Bluish, touched with mauve-purple; nicely-formed flower of pleasing colour.

Celimene.—Has a magnificent spike of well-expanded perfect flowers of delicate carmine-rose ground, flamed carmine, first-rate.

Lacepede.—A distinct variety, whose flowers are soft pink, spike closely set, with well-opened blooms, excellent.

Gloire de France.—Habit dwarf, spike long, closely set with neat-formed pips of light rose hue, blazed carmine, and centered purple, exceedingly handsome.

Sappho (new).—Rose-pink under petals, densely overlaid with French white, which again has a patch of purple crimson staining the middle; grand spike of equally grand flowers.

Jupiter (new).—Colour beautiful, though its crimson is lurid by its mixture with maroon; this ground is interspersed with patches of rose. At the opening stage the flowers exhibit deep maroon flakes, which change in hue to rose as they get aged; very distinct and striking.

Schiller.—Ground-colour French white, blending into yellow, flamed delicate purple, centered maroon crimson; pips large, neatly formed, closely set on a handsome spike.

Marie Dumortier.—White, feathered rose on a yellow-centre ground; furnishes a neat moderately large spike.

Ariadne (new).—Magnificent as a pot plant; the pips are large and perfect, ground white tinted, rose lilac, and flamed carminated rose; a charming spike.

Digitized by Google

Athalia (new).—Long spike of large flowers, violet tinted with rose, blazed purple; another of the most desirable for its distinctness, as also for its surpassing effect.

Didon (new).—Exhibits a tall spike on a vigorous and exalted stem, with perfect white flowers, tinged and flamed lilac, the under petals soft white, extra.

Ida (new).—A most delightfully pure sort; ground white, tinged with rose, flaked carmine rose, lower division light-yellow.

To describe my whole list, I find, will occupy too much space, so I add the names of the remainder—not that they are less valuable than those which have been described:—Argus, Armida, Bernard de Jussieu, Circe, Comte de Morny, Delicatissima, El Dorado, Flore, Homer, Horace, Imperatrice Eugenie, James Watt, Jenny Lind, John Waterer, La Candeur, Lady Franklin, Lord Byron, Madame de Sevigné, Madame Dombrain, Milton, Montaigne, Newton, Penelope, Prince of Wales, Princess Alice, Princess Mary of Cambridge, Reine, Victory (should be potted by the dozen; none can surpass it for pot-culture, and it never fails to reproduce excellent bulbs for succeeding years), Robert Fortune, Rubens, Shakespeare, Thalie, Thomas Moore, Urania. A. KERR.

ROSE-HEDGES.

ROSE GLOIRE DE DIJON IN THE WEST HIGHLANDS.

THIS Rose is so universally grown, and so very much admired by all who have a taste for Roses, that a few remarks on the style in which I saw it growing, in one of the places which I had occasion to call at last summer, may not be out of place in the pages of the 'Gardener.'

On visiting the gardens of the Right Hon. Lord Middleton of Applecross, about the first week in August, I was very much astonished to find a hedge of this fine Rose over 200 feet long, and nearly 5 feet in height, in the finest possible health, and one sheet of flowers—and such flowers! I was told by Mr Whitelaw, the intelligent gardener here, that the idea of such a hedge originated with Lady Middleton, and that the idea was no sooner entertained than it was carried out; hence the result. Lady Middleton has also had a hedge of Senateur Vaisse planted to the same extent as Gloire, but more recently; consequently, the plants have not the same fine appearance as the others. Those hedges are planted as screens to the kitchen-garden, and nothing could be more appropriate; and, as Mr Whitelaw remarked, there was no end of cutting Roses from them, which is another matter worthy of consideration when quantities of flowers are required. I may mention that before those hedges were planted a neat wire fence was put up, with five strands, and after the plants were put in they were fastened to the wires. As they grew, the shoots were intertwined in and out until they reached the top. By this means they are quite compact, and independent of any other fastening

Digitized by Google

to the wire. The soil and situation here seem very suitable to the growth of the Rose, as the numerous dwarfs and standards were equally in fine health, and blooming in the greatest profusion.

Applecross being situated on the west coast of Ross-shire, and nearly close to the sea-beach, the influence of the Gulf Stream is sensibly felt; consequently there is but little frost in winter. Tea-Roses, Fuchsias, &c., are seldom injured; in fact, Fuchsia Riccartonii is quite a shrub here.

The kitchen-garden lies to the south-east of the mansion-house, and is surrounded by a neat substantial stone wall. To the west of this there is a very pretty flower-garden of considerable dimensions, and bedding-out is practised on rather an extensive scale. As a rule, there was much finer bloom than in places further south, the weather in the north having been very fine in the early part of summer. It is hardly possible to conceive a more enjoyable place in summer than Applecross, standing as it does about seventy miles north-west of Inverness, and opposite the island of Skye; and from the policies may be seen some of the finest and grandest scenery in Scotland.

JOHN DOWNIE.

[It is a wonder that Rose-hedges are not more frequently planted.—ED.]

CHRYSANTHEMUM (ANTHEMIS) FRUTESCENS AND C. GRANDIFLORUM.

THE French seem to have long ago found out the real value of these two pure-white flowering plants for general decorative purposes. Everywhere about Paris you will see these two plants grown in borders, in pots for sale in the flower-markets, and for room-decoration later in the season. It is somewhat surprising that their usefulness has not been earlier recognised on this side the Channel, seeing that they are eminently adapted for outdoor decoration in our climate, being as hardy and as easily managed as the shrubby Calceolaria. They yield a most abundant crop of pure-white, single, daisy-like flowers, mingled—especially in the case of C. frutescens—with most gracefully-cut glaucous foliage, and are very effective back or second-back line plants in mixed borders. For the centres of large beds they are also effective, and match well with such plants as tall Ageratum, Perilla, or Verbena venosa, as an edging. But perhaps their chief value arises from their being admirably adapted for pot-culture, to bloom into the dead of winter in cool quarters under glass. And either for the conservatory, room-decoration, or cut-flowers, they come

Digitized by Google

in most useful, yielding as they do a great profusion of bloom, and capable as they are of being trained into elegantly formed plants.

Their general management is as easy as that of the shrubby Calceolaria, and for ordinary outdoor decorative purposes the very same kind of treatment does for both. For winter-flowering plants in pots, it is best to manage them something in the same way as Chrysanthemums proper are managed. A batch of cuttings should be struck in February —they strike as freely as a Verbena—and potted on afterwards in rich open soil into pots according to the size of plants desired. Perhaps for blooming plants of less dimensions, say in 6-inch pots for winter, April is early enough to strike. When sufficiently hardened off, and all danger of frost to injure them is over, the best way is to plunge them in an open situation, the same as Chrysanthemums, Salvias, &c. They can be pinched into any shape, bush or pyramid; but the pinching should not be carried on after the middle of July, or the blooms will be weaker.

Grown on into large pots, they make most effective conservatory plants all winter, and last for weeks in bloom. They are subject to green-fly, of which they must be kept clear in the usual way; and when well rooted, water freely with liquid manure. In fact, Chrysanthemum treatment suits them well, and they are well worthy the care and attention of all who have many winter flowers to supply, besides being most effective border-plants in summer and autumn. Nemo.

[This is a most useful winter-flowering plant. We have it in abundance just now.—Ed.]

PRESENTATIONS TO MR TEMPLE, BALBIRNIE GARDENS.

Mr Temple, who for the last ten years has held the situation of gardener at Balbirnie, with very great credit to himself and the highest satisfaction to his employer, has been appointed to the superintendence of the magnificent gardens and grounds at Blenheim. As a mark of the esteem in which Mr Temple has been held while at Balbirnie, we are pleased to state that on Thursday, November 7, a number of friends presented him with an elegant piece of plate and other substantial tokens of their regard for him as a friend and neighbour, and on account of the lively interest he took in every laudable object in the locality. Besides this, a number of members of the church with which he has been connected at Markinch entertained him and Mrs Temple on November 6, and presented them respectively with a handsome gold chain and brooch from the Sabbath-scholars, as an expression of the appreciation in which they held the active part he had taken for many years in connection with the school.

Digitized by Google

ACER NEGUNDO VARIEGATUM.

I OBSERVE at page 1322 of the 'Gardeners' Chronicle' a notice of the above fine tree having been planted with good effect in the gardens at Cliveden last summer. After planting the centre portion of our winter-garden here last spring with large Camellias averaging about 8 feet high, it struck me that, if I could get the Acer, with its fine white foliage, placed here and there among the plants, they would take away the sombre look of so much dark green. I accordingly had six plants lifted from the open border (averaging about 9½ feet high). In the first week of March I had them potted and placed in a stove, with an average temperature of about 65°. In a few days they began to break, and in five weeks they were in full foliage. I then had them so placed as just to overtop the other plants in the house, and the effect was most striking. As the Acer seems to be so easily forced when merely taken from the open border, I have taken the precaution to retain those I forced last spring in the pots in which they had been grown all summer, and I intend to have them repotted and placed in heat about the first week in January, and expect good results from them. I would advise any one having lofty glass-houses to adopt the same process, and they will not be disappointed.

WEST COATES NURSERY. JOHN DOWNIE.

[This idea is very good. The Acer negundo variegatum is also very striking in Rhododendron clumps outdoors.—ED.]

NOTES FROM OUR GREENHOUSE.

Liliums.—Too much cannot be said in behalf of these grand autumn favourites, which have found their way into most greenhouses; and I particularly refer to Auratum, with the varied streaks and beautiful dottings of its blooms. It is a pity this fine Lily does not continue a little longer in flower; but what it lacks in this property is fully made up in the quality of the flowers while they do exist. Here they lasted some days longer than last year. I cannot account for this in any other way than that last year dry warm weather prevailed during the whole of the month of June, which swelled the buds rapidly. Bright weather prevailed also during the time they flowered; while this season the weather was exactly the reverse, retarding the plants in all stages. In potting them last December, I used sandy peat freely, simply because I had plenty of it, and was scarce of loam at that time. Moreover, I believed, on the authority of some writers, that Auratum flourished famously

Digitized by Google

in a peaty soil. I wish now that I had used a greater proportion of loam and a little old cow-dung, as I will certainly do at next potting. Although they flowered satisfactorily, the growths were weaker than I would have liked. This, however, was in proportion to size of bulbs. One large bulb, for instance, grew strong, and had eleven blooms on one spike; so that this goes a good way to prove that with strong bulbs and a rather peaty compost the principal conditions of success are attained.

Asters.—Perhaps some of your readers have never thought of trying these for the decoration of the greenhouse. I have no hesitation in advising them to do so. In a season such as this has been they are particularly acceptable, and have been much appreciated here this autumn; and I have been requested to grow them in quantity in small pots, for the purpose of room-decoration next year. Specimens for the conservatory will be most effective three in an 8-inch pot, or adding one to every size larger. A rich loamy soil is most suitable to grow them in. For autumn flowering the beginning of May is early enough to sow. They do well with the same attention as directed for Stocks—I think by the Editor of this journal—in the 'Gardener' some years ago. D. M.

ISLAY.

REVIEW.

THE CLEMATIS AS A GARDEN FLOWER: BEING DESCRIPTIONS OF THE HARDY SPECIES AND VARIETIES OF CLEMATIS, WITH SELECT AND CLASSIFIED LISTS, DIRECTIONS FOR CULTIVATION, AND SUGGESTIONS AS TO THE PURPOSES FOR WHICH THEY ARE ADAPTED IN MODERN GARDENING. By Thomas Moore, F.L.S., and George Jackman of Woking Nursery, Surrey. London: John Murray, Albemarle Street.

On seeing the announcement of a work entirely devoted to the Clematis as a plant adapted to modern gardening, some may perhaps have been surprised, especially those who may not have had the opportunity of seeing the splendid varieties now in cultivation, and the effective ways in which they are used in flower-gardens. For ourselves we can say that the announcement of such a work was very gratifying, more especially as its authors are men who must be regarded as eminently qualified for such a work, botanically and practically. It requires only a perusal of the work to show how well deserving of such attention is the Clematis, and the masterly way in which the subject is handled. Not a point worth noticing has been omitted; and while each point is elaborately discussed, there is nothing that the reader would wish to be left out.

The work begins with a concise historical introduction, then gives a very interesting account of the great improvements effected in the Clematis by modern hybridisers and selecters. Then follow ten chapters dealing with the classification of hardy species and varieties, selections for various purposes, general culture of the various types of Clematis, special culture for the conservatory of the Clematis as a wall-plant, as a bedding-plant, as a pillar-plant, as

Digitized by Google

a rock and root-work plant, as an exhibition plant. Then the certificated varieties of the last ten years are noticed, hints on hybridising, classified lists of the species and varieties of the different types, finishing with descriptive notes of species and varieties desirable for garden cultivation. The work is interspersed with eighteen beautifully executed coloured and wood engravings, illustrative of the purposes for which the Clematis is eminently available, &c. Altogether this work is a most interesting and instructive one, written on a well-conceived plan, and well written; and we most cordially recommend the work to all interested in ornamental gardening. The value of the Clematis in its now improved varieties can scarcely be overrated. Whether it be its great profusion of most effective bloom, its perfect hardiness, and adaptability for many purposes, it is, to our mind, unrivalled by any other hardy deciduous climber. It blooms with us in Dumfriesshire from early in July to the middle of November. At present, November 6, Jackmanii and other varieties of that type are in bloom on north aspects, where the sun never touches them, and in other aspects as well. All who wish to know all about their culture, and different ways of using the different sorts, should possess this beautifully-got-up work of Messrs Moore & Jackman.

A PEEP THROUGH MARTON HALL,

THE SEAT OF H. W. F. BOLCKOW, M.P. FOR MIDDLESBORO' (YORKSHIRE).

On entering through the potting-shed—a very spacious building, as all the buildings here are, and new; but I must not particularise them in this paper, but may say that all are finished and fitted up with the latest improvements—I found myself at once in the greenhouse, which was filled with all the finest of hardwooded plants, and a multitude of other winter-blooming plants too numerous to individualise. In the early vinery the Vines were quite fit for starting at any time. In this house Camellias occupied a good share of the spare room, and seemed very forward in bud. Leaving this house, I entered the Strawberry-house, which is fitted up with staging at the proper time; but at present the house is occupied by various stove-plants, principally specimens of the following (all in pots):—Allamanda nobilis, A. grandiflora, A. Hendersonia, Rondeletias, Stephanotis, Plumbago, Swansonias, Vinca rosea and alba, Clerodendron Balfourii, Dipladenias, Bougainvilleas, &c. &c.; and a few fruiting-Pines of no mean order. From their appearance, by the time they are fit for table they will range from 8 to 10 lb. The next house is the Orchid-house. In this structure, not a very large one, were a mixed collection of Orchids and Pitcher-plants, of which Dendrobium nobile seemed to be the favourite—that is, if one were to judge by quantity. This house contained, among others, Alocasia metallica, A. Lowii, A. zebrina, the latter the largest plant I ever saw, some specimens of Sansevieria nobilis variegata, a very handsome and accommodating plant. All looked remarkably fresh. Next, and last on this side, comes the Cucumber-house. Here the plants looked very promising indeed, all growing in Seakale pots set upon the top of the beds. In this house also were most of the latest introductions of Dracænas, all in a young state, but in excellent health, and will of course show their colours a few years hence. The kitchen-garden was well filled with winter Greens of all the leading sorts; and in passing along, Mr Hanson, the gardener, showed me a square of early Horn Carrots, sown after a Potato crop. I looked at the tally, and found thereon "Early Horn Carrot, sown 6th July 1872." Those with limited kitchen-gardens might do much in this way. Leaving the kitchen-garden, I came to the orchard-house, which runs the whole length of one side of the

Digitized by Google

kitchen-garden. In this structure the west side is occupied with Peach-trees, the back walk with Pear-trees principally, and on each side of the footpath which runs along the centre of the house all Pears, Apples, and Plums, of the choicest kinds, both planted out and in pots; and here and there pillar-Roses and Clematises of the choicest kinds, festooned at equal distances. There can be seen Marechal Niel running along the roof, the finest of all in the house, in a large late Peach-house, ripening off the wood for next year after bearing a very heavy crop. The next house is the early Peach-house. The wood in this house could not be better set for fruit, it is so close-jointed and stubby. From this I entered the late Vinery, a sight well worth seeing. In it are many varieties, and it would be very difficult to say which is in the best condition; the crop is very heavy. Next comes the intermediate Vinery, which had just been cleared of crop, and looked very promising for next year. If a fault could be found in the Vineries, it is that the wood is too strong. Next comes the Palm-house, in which is a sight not readily to be forgotten. This was Bonapartea juncea, with a flower-spike 10 feet 6 inches high, and still growing—a sight worth going a long way to see. In this compartment Passiflora quadrangularis was planted out at different uprights, and hanging down laden with its very showy and highly-perfumed flowers in great profusion. When seen in this state and at a distance of from 15 to 20 feet overhead, the effect is grand. Amongst the Palms the following are very conspicuous:—Chamædorea, Areca, Calamus, Lantania, and a number of others too numerous to mention here, except one I cannot omit to notice—Phytelephas macrocarpa. This Palm yields the vegetable ivory of commerce. Besides these there were some very large Musas (bananas) in fruit. Under the above was a splendid collection of Ferns, and all seemingly at home—Adiantum Farleyense amongst the others. There was a seedling Fern which must have a passing notice. It is in the style of Gymnogramma ochracea, but powdered on the surface as well as underneath; and the powdering of the surface is of a lighter colour than that underneath. My time being limited, I hurried through the two large Pine-houses, noticing some excellent fruits of Charlotte Rothschild, and many others in excellent condition, both fruiting and succession; and left, highly pleased with an hour and a half's visit. All through, the establishment bore the mark of excellent culture; and I would say to all interested in seeing rare plants not to miss Marton Hall when in this locality. J. T. BURNS, Middlesboro'-on-Tees.

TROPŒOLUM "MINNIE WARREN."

THIS is a most chaste and beautiful foliage-plant for carpet-bedding; it is of a creamy-white variegation, the margin for about one-third of the leaf being of the same shade as the leaf of Flower of Spring Geranium, the centre of the leaf a light green: it is quite a novel and distinct plant—has a delicacy and effect peculiarly its own. For the centres of cushion-beds it is particularly adapted. In the unique flower-garden at Heckfield Place, Mr Wildsmith used it for the centres of round beds this season, and we were much struck with it. It grows freely, and propagates even freer than the old Tropœolum elegans, though a much finer plant. No flower-garden with any pretension to taste should be without it. THE SQUIRE'S GARDENER.

Digitized by Google

Calendar.

KITCHEN-GARDEN.

Now that most of last season's crops are either proving the quality of the seeds ordered nearly a year ago, or have long since brought them to the test, it may be well to look over any which may remain; and those that are worth saving should be noted, and a list made, so that seeds should not be ordered unnecessarily. Inferior kinds not true to name should be discarded as worse than useless. Economy may be viewed in various ways; but it is of a false kind to get inferior articles because they may be cheap. If the garden is small, there is the more necessity of securing seeds which which will return true value for labour, manure, &c. It is also well to know what kinds do best in the soil and locality. I would not advise beginners to be led away by advertisements or high-sounding names: by saying this we do not despise legitimate means of bringing good things before the public, but rather commend the practice as being really necessary. While preparing ground as formerly advised, it is necessary to keep in mind that the work should not be done at random—some crops require abundance of manure, and others rather sparingly. All root-crops require well-trenched ground, and make a change as far as possible on every plot. If Asparagus is not already cleared of old stems, and the crowns covered with a little soil, let it be done without delay. Damp heavy land is against the keeping of Asparagus, and when manure is given it liberally, decay is ready to set in. If preparation is made for this crop, plenty of light manure and sand may be incorporated with the soil. The soil laid up in ridges, to be broken over in spring, will do much to prepare it for planting Asparagus. Let all vegetables, such as Endive, Lettuce, Broccoli, &c., be taken under cover when in danger of frost: turf-pits or any similar construction will answer well for storing them. If weather is severe, pea-stakes should be made, large labels cut, and tied in bundles ready for vegetable crops. Turn manure and all useful stuff for garden use; sift gravel; clean any seeds saved, and tie them in bags to be kept cool and dry; let roots in cellars be looked over occasionally—it is objectionable to leave anything till spring which can be done now. If Peas and Beans in early positions should appear, let a little earth be drawn over their tops. Evergreens stuck among them will do much to protect them. Coal-ashes or soot may be dusted along the rows to keep slugs in check. Though it is in many places easy to raise Peas and Beans in turf, boxes, &c., for early crops, in other places there is not the room. Then it is of much importance to look well after the crop in the ground, especially where many enemies are at work. Keep up successions of Rhubarb, Seakale, Mushrooms, Chicory, small Salads, and Asparagus. French Beans may be sown where there is warmth to bring them forward. Frequent sowings give more certain supplies. Keep every part of the garden free from decaying matter. M. T.

FORCING DEPARTMENT.

Pines.—There will now be suckers on such varieties as Smooth Cayenne, Charlotte Rothschild, and Jamaicas, from which the fruit have recently been cut. If these are large enough to pot, let them be potted at once, putting them into 6-inch pots, plunging them in a bottom-heat of 85°, with an air temperature of 65°. Plunge them thinly near the glass. These will make a valuable succession to those potted six weeks since. If any of these winter varieties are well rooted in 6 and 7 inch pots, give them a shift into 9-inch pots, and keep them gently on the move all winter, and they will start to supply fruit next November. We have at present a fine batch ripening that were potted into 9-inch pots last season. Where early Queens are required to ripen in May, look over the stock of these, and select the required number of those most likely to start without making a growth, and plunge them about the middle of the month in a bottom-heat

Digitized by Google

of 85° to 90°, with a night temperature of 65°. Keep them in a light place near the glass. If very dry, water them with tepid guano-water, but do not keep them over-moist at the root. Keep the air more moist for them also, but avoid applying it to an extent that causes it to condense on the roof and fall into the centres of the plants. The plants intended to form a succession to them, keep quiet for the present. 55° will be warm enough for them during hard frost, and 60° when the weather is mild. Let fruit swelling off be carefully attended to. Do not let the soil get over-dry, but at same time avoid giving more water than is just necessary to keep the soil moderately moist. Keep the temperature at 70° at night during ordinary weather, but let it sink a few degrees at night when cold or windy, and do the forcing by day when less fire is needed. Look over early autumn-potted suckers that are being wintered in dry pits in plunging material deriving bottom-heat from pipes, and water those that appear very dry. It is not desirable to excite these this month. At the same time, if well rooted, and they are allowed to become very mealy dry, there is the risk that a good many may start prematurely in spring when excited. During cold weather, when strong fires are necessary to keep up the heat, this portion of the young stock is apt to become dry enough to require water.

Vines.—When Vines in the early vinery have broken to the length of ½ an inch, raise the night temperature to 60°, and allow it to run 5° higher by day. If the early crop is being forced from pot-Vines, and is required to ripen as early as possible, the temperature may range 2° or 3° higher. But, as a rule, high temperatures throughout the cold dark days of December are undesirable, and the better way is to force harder, if required, after the days get longer, and there is more sun. A great many vineries are generally started this month. [See our last month's directions regarding the starting of these.] There is nothing so much favours the successful breaking of Vines into bud in winter as a fermenting bed of leaves on the inside borders, a little of which turned over every day gives off a warmth and wholesome steam, rendering the use of much fire-heat unnecessary till the Vines break into bud. Continue to examine all Grapes still hanging, at least three times weekly, and remove every sign of mouldy or decaying berries. Keep the temperature at 45° on cold nights. Make fires early on the mornings of fine days, and heat the pipes a little at the same time, opening the ventilators to carry out the moisture; but keep them close on foggy wet days. Where it is desirable or necessary to use the late vinery for storing plants that require to be watered, the Grapes may be cut with a portion of stem to each, and put in bottles of water in a dry room where the temperature ranges steadily from 40° to 45°, putting a little charcoal into each bottle. Here the Grapes must also be examined regularly, and bad berries removed. Where new Vine-borders have to be prepared for planting next spring, now is a good time to collect the requisite amount of loam, taking the opportunity of exposing it to frost, if possible, to destroy wire-worm where it abounds, as it sometimes does in turf taken from old pasture. See that the young Vines intended to be planted are placed secure from more than a very few degrees of frost, and that they do not become either mealy dry or sodden with wet at the root. Prune all houses from which the fruit is cut; clean off all loose bark, and dress with equal proportions of flour of sulphur, soot, and clayey loam finely sifted, reduced to the consistency of thick paint. To every gallon add about the size of an egg of soft-soap. Work this well into all crevices on the bark of the Vines, especially if spider has been troublesome last season. Thoroughly clean all glass and woodwork, remove the loose surface-soil from the border, and replace it with fresh loam in which a third part of horse-droppings has been mixed.

Peaches.—Presuming that the early house has been pruned and tied and kept close for fourteen days, apply fire-heat to keep the night temperature at 50° in mild weather, allowing it to drop a few degrees when cold. Cautious forcing till the fruit are set is one of the safest conditions in early Peach-forcing. Keep the atmosphere moist by sprinkling the border and paths two or three times daily, and on very fine days syringe the trees with tepid water. Give a little air daily, and shut up with sun-heat whenever

Digitized by Google

such can be done. If young trees are yet to plant in any of the houses, lose no time in doing so. It is a good plan, where healthy trees exist on the open walls, to lift some of them for furnishing Peach-houses: much time is thus gained in getting a house in full bearing. If lifted now, they will bear next season. Prune, dress, and tie succession-houses as formerly directed.

Figs.—By the middle of the month pot-Figs can be started. Plunge them in bottom-heat, ranging from 75° to 80°. Keep the night temperature at 50°. Syringe the trees twice daily, and keep them moderately moist at the root. A bed of warm leaves is an excellent means of bottom-heat in starting them. If the plants have been several years in the same pot, top-dress them with equal parts dung and turfy loam. Brown Turkey and Raby Castle are excellent varieties for pot-culture and for starting early.

Cucumbers.—When the weather is cold and sunless, regulate the heat in the case of plants in bearing at 68° at night, with a few degrees more by day. If possible, cover the glass when hard frosts occur in preference to hard firing. See that they do not get too dry at the root, especially near the hot-water pipes. Give more or less air every fine day. Keep the air moderately moist. Stop the fresh growths at every joint, and avoid heavy cropping. About the end of the month sow more seed for planting out in February. Sow in a temperature of 70°, in bottom-heat of 80°; and when the young plants appear above ground, expose them to as much light as possible, and grow with the least possible amount of water at the root.

Strawberries in Pots.—A quantity of these may be put into newly-started vineries and peach-houses near the glass, but if they can be plunged in a bed of leaves, in which there is a little heat, and near the glass, they will start sooner and more strongly. See that the drainage of each plant is correct, that the pots are cleanly washed, the balls surfaced, and all decayed leaves removed, before putting them into their forcing-quarters. Protect the general stock from very hard frosts, and put a quantity into heat every fourteen days, according to the demand. If there are worms in the soil, water with lime-water.

Notices to Correspondents.

All business communications and all Advertisements should be addressed to the Publishers, and communications for insertion in the 'Gardener' to David Thomson, Drumlanrig Gardens, Thornhill, Dumfriesshire. It will further oblige if all matter intended for publication, and questions to be replied to, be forwarded by the middle of the month, and written on *one side* of the paper only. It is also requested that writers forward their name and address, not for publication unless they wish it, but for the sake of that mutual confidence which should exist between the Editor and those who address him. We decline noticing *any* communication which is not accompanied with name and address of writer.

A Subscriber.—We cannot recommend any other way of conveying the water from both your greenhouse and frame than that shown in your sketch; but unless when your frame-light is propped up and glazed the reverse way, the water will not run into the gutter at front of greenhouse. Why not put a spout or gutter at front of greenhouse under the sash in the usual way, and another at front of frame, and let the water escape at the end into a drain? You will find the cultivation of greenhouse Rhododendrons fully treated of in the 'Gardener' of May 1871 by Mr Hugh Fraser.

Digitized by Google

CONSTANT READER.—It is not advisable to shift your Azaleas till after they have bloomed and have begun to grow. In the mean time supply them well with water.

T. F.—Your Pine-plants are evidently suffering from the condition into which the drip has reduced the soil; and the temperature is too high—60° is high enough. It is hopeless to think of wintering Pines in such quarters; and your employer should not expect you to do so successfully.

R. MANSON.—The most efficient and simple transplanting machine that we have seen is one invented by Mr Reid, gardener to the Right Hon. the Earl of Crawford, Haigh Hall, Wigan. It may be briefly termed a combination of a huge shovel and fork mounted on an axle with two wheels. The axle is bolstered with timber, by which the lifter is raised to the top of the wheels; this timber is cased at back and front with strong iron straps, which are perforated so that six iron prongs, being shouldered and threaded, pass to the shoulder and are fastened by nuts. The prongs are 2 feet 8 inches in length, having a slight bend or lift upwards; the lever is 10 feet in length, the wheels are 2 feet in diameter, and the plate 3 feet 10 inches by 3 feet 4 inches. The above dimensions show the prongs to project 6 inches beyond the plate, which is flanged at both sides and in front. It will be perfectly clear to any one from the above description that the machine partakes wholly of the nature of a lever on wheels, and is remarkably well adapted for the lifting of trees and shrubs of ordinary size.

POLYANTHUS.—At the request of my friends the Polyanthus-growers, I send you a list of the best twelve sorts that I know, as I grow them. These have all bloomed abundantly and well the past season. I think they would please any one, and deserve general cultivation to grow them in pots. Generally I put them in small pots in August, and plunge them in ashes till the latter end of February; then I repot them into 6-inch pots. The compost I use is old turf and leaf-mould, with good sharp sand and old horse-dung in equal proportions, well mixed together; this I find always does well with me. The reason that I put them in small pots is, they make one good crown, and they throw up a stronger stem for blooming; the flowers are much larger, and not coarse. I do not like coarse flowers—refinement should always be a florist's aim. In my next I intend to state how I grow them in beds, and how to raise a good stock, and the manner I raise my seed, and also how I treat my seedlings.

My best twelve kinds are: Earl of Lincoln, extra fine; Charles Allsebrook, extra fine; Beauty of England, fine; President, fine; Cheshire Favourite, fine; and Alexander, fine. The following are red-laced: Kingfisher, fine; Lanceer's Master, fine; Mrs Allsebrook, fine; George the Fourth, fine; Exile, fine; and Lanceer, fine.—I am, &c. WILLIAM ALLSEBROOK.

SOUTH VIEW GARDENS,
SPARROW LANE, SHEFFIELD.

Digitized by Google

INDEX.

Abies, culture of, 158.
Abutilon megapotamicum, 289.
Acacias for the conservatory, 117—notes on, 232.
Acer negundo variegatum, 573—and Perilla, 500.
Achimenes for the conservatory, 302.
Agaves, culture of, 133.
Ageratum Imperial dwarf, 417.
Allamanda cathartica, 138.
Allamandas and Dipladenias, 264.
Aloes, culture of, 134.
Alternantheras, culture of, 268.
Amaranthus salicifolius, 456.
Amateurs, Hints for, 18, 63, 129, 168, 215, 262, 305, 351, 403, 450, 499, 547—miscellaneous notes to, 87.
America, Gardening in, 26, 70—Vine-growing, 139.
American Rose Potatoes, the, 419, 520.
Ananassa variegata, 144.
Annuals, a plea for, 557.
Anthurium Scherzerianum, 132, 303, 315.
Antirrhinums, 550.
Araucaria, notes on, 299.
Aucuba Japonica as an under shrub, 381.
Autumn and Winter flowering Plants, notes on, Brugmansia, 29—Cyclamens, 30—Salvia, 31—Camellia, 80—Poinsettia, 81—Luculia, 120—Rhynchospermum, *ib.*—Euphorbia, 178—Ixia, *ib.*—Acacias, 232—Lantanas, 233—Libonia, 269—Primula, *ib.*—Clerodendrons, 413—Erythrina, 414—Tabernæmontana, *ib.*—Petunias, 455—Amaranthus, 456—Rivinas, *ib.*—Torenia, 507—Mandevillea, 508—Campanula, 549—Antirrhinums, 550—Tropœolums, *ib.*
Azaleas, culture of, 115, 312.
Balsam for the conservatory, 302—notes on, 526.
Battersea Park, 468.
Bedding-out at the Crystal Palace, 515.
Bedding-plants, cultural notes on 32, 142, 320, 366, 425—their propagation, 421—and Hardy plants, notes on, 417.
Begonia Bolivienses, 98.
Begonias, a gossip on, 165.
Bengal, Tea-culture in, 529.
Birmingham Show, the, 382, 385.
Bottom-heat, effects of, on out-of-door plants, 62, 109.
Bougainvilleas, 374.
Bouquet-making, 277.
Brexia spinosa, 144.
Broughty Ferry, wages meeting at, 192.
Brugmansia, the, 29.
Bulbs and roots for forcing, 59—Flowering, notes on, 213.
Cacti, culture of, 219.
Calanthe, the, 37.
Calceolarias for the conservatory, 118.
Calendar, the, Kitchen-Garden, 46, 99, 147, 196, 244, 291, 340, 387, 436, 484, 534, 577—Forcing, 47, 100, 149, 197, 246, 292, 341, 388, 437, 485, 535, 577.
Camellias, 115—culture of, 80—at Lytchett, 234—propagation of, 466—for autumn flowering, 540.
Campanula Vidalii, 284—pyramidalis, 549.
Campylobotris culture, 127.
Carrot, the, 489.
Cauliflowers, cultural notes on, 35—Maggot in, 121.
Cedrus, notes on, 254.
Celosias, 356.
Cereus, culture of, 219.
Chilwell nurseries, 361.
China Primrose, the, 452—Roses, propagating, 74.
Chorozemas for the conservatory, 117.
Chrysanthemum frutescens, 114—and C. grandiflorum, 571.
Cinerarias for the conservatory, 117—notes on the flowering of, 334.
Clematis, 427—work on the, reviewed, 574.

Digitized by Google

Clerodendrons for the conservatory, 303—culture of, 413.
Climbers, Greenhouse, 187, 203.
Cochliostema Jacobiana, 193.
Coleus Princess Beatrice, 79.
Colston Basset, &c., Melons, 517.
Composts, 53.
Coniferæ, 92—Hardy, *see* Hardy.
Conocliniums for table-decoration, 223.
Conservatory, March flowers for the, 115—Climbers, 203—Soft-wooded plants for the, 301—For October, the, 448.
Coral tree, culture of, 414.
Cotyledon for outdoor decoration, 22.
Countess of Haddington Verbena, 497.
Crassulas for outdoor decoration, 22.
Cropping-time, 347.
Croton angustifolium, 144.
Crotons, 89.
Cryptomeria, notes on, 399.
Crystal Palace, notes on bedding-out at, 515.
Cucumber culture, 226, 278—Blue Gown, 93—Munro's Rably, 339.
Cupressus, notes on the, 494.
Cyclamens, culture of, 30, 41—for the conservatory, 117.
Cytisus racemosus, 117.
Dactylis glomerata, 471.
Dendrobiums, select, 441.
Dionæa muscipula, 362.
Dipladenias and Allamandas, 264.
Donibristle, visit to, 325.
Donisla, Grapes at, 521.
Duke of Buccleuch Grape—Muscat for a stock, 477.
Dundee Show, the, 527.
Dwarf Palms, 270, 318.
Dyckia argentea, 433.
Echeveria for outdoor decoration, 21.
Epiphyllum, the, 333.
Erica Lambertia rosea, 170.
Erythrina, culture of, 414.
Eucharis Amazonica, 498.
Eucodonias, 376.
Euphorbia jacquiniflora, 42, 178.
Exhibitions, reports of, 42, 95, 145, 194, 238, 289, 435, 479, 527—Judging at, 304, 371, 378, 405, 423, 457, 473. *See also* Horticultural.
Ferniehurst Orchids, the, 162.
Ferns, culture of, in cases, 24, 67, 123.
Ficus elasticus, 288.
Fig-culture, 258, 443, 501, 552.
Fittonia culture, 127.
Floral decorations, excessive, 345.
Flower-bed, a mixed, 236.
Flower-beds, notes on, 188, 335.
Flowering bulbs, notes on, 213—plants and shrubs, notes on, 287.
Foliage plants for table-decoration, 144.
Food Journal, the, 46.
Forcing, bulbs and roots for, 59.
Forcing-houses, temperature of, 541.
Fordell and Donibristle, visit to, 324.
Fourcroyas, culture of, 134.
French-Bean forcing, 544.
Frosts, late spring, 464.
Fruit-trees, pruning and training of, 16.
Fuchsias, notes on, 87, 317, 525—for the conservatory, 301.
Funkia, notes on, 329.
Garden, does it pay, 428—Soils, observations on, 433.
Gardening in America, 26, 70.
Gasterias, culture of, 135.
Gladiolus, the, 472.
Gladioli for the Conservatory, 568.
Glasgow International Show, the, 191, 479.
Gloxinias, 182, 400—for the conservatory, 302.
Golden Champion Grape, the, 458.
Grapes, early, pot-culture, 211—shanking of, 360—at Donisla, 521.
Greenhouse, notes from our, 525, 573—Climbers, 187, 203—Plants, old, notes on, 369—Plants, prize for, 556.
Gymnostachium culture, 127.
Gymnostachys, culture of the, 336, 429.
Hardy Conifers, notes on, No. L, General remarks on culture, 6—Pinus, 57, 110—Abies, 158—Picea, 206—Cedrus, 254—Araucaria, 299—Wellingtonia, 349—Taxodium, 398—Cryptomeria, 399—Cupressus, 494.
Hardy plants with remarkable leaves for bedding out, 329—shrubs for forcing, 9.
Haworthias, culture of, 136.
Heating, ingenious mode of, 528—by hot water, observations on, 2—new method of, 256.
Heliotrope for winter-flowering, 137.
Hibberd's Ivy, review of, 337.
Hogg's Gardener's Year-Book, 46.
Holm Oak, the, 84.
Horticultural Exhibitions, 423—do they accomplish their end, 371, 473.
Hunter, Mr, seedling Pine-apple raised by, 15.
India, letter from, 379.
Indiarubber plant, the, 288.
Ingram, Mr, death of, 193.
International Show, the Glasgow, 191, 479.
Ivy, Golden-clouded, 231.
Ixia, the, 178.
Judging at exhibitions, 304, 371, 378, 405, 423, 457, 473.
Justicia, culture of, 93.
Kalosanthes coccinea, 369.
Lambton, seedling Pine-Apple raised at, 15.

Digitized by Google

Lantanas, notes on, 233.
Libonia floribunda, 269, 551.
Lilies, a word about, 464.
Liliums, 355—Colchicum and excelsum, 418.
Lily of the Valley, culture of, 544.
Liverpool Botanic Garden, the new plant-houses in, 13.
Luculia gratissima, 120.
Lycopods, a few words about, 85, 232.
Lytchett, Camellias at, 234.
M'Lachlan's new edging-tool, 243.
Madresfield Court Grape, 339, 368, 419, 526.
Mammillarias, culture of, 221.
Man, the Isle of, a holiday in, 521.
Mandevillea suaveolens, 508.
Marton Hall, a peep through, 575.
Melon culture, 307, 363, 408.
Melons, Colston Basset, &c., 517.
Mesembryanthemums, culture of, 266.
Mildew on Vines, treatment of, 514.
Mimosa prostrata, 243.
Mimulus, where to grow them, 316.
Mixed flower-border, on planting a, 558.
Moore on the Clematis, review of, 574.
Munro's Rably Cucumber, 339.
Musa Ensete, 287.
Mushrooms, on, 223.
Neill prize, the, 236.
Notices to Correspondents, 50, 103, 152, 200, 248, 295, 343, 390, 439, 487, 537, 579.
Onion, the White Naples, 377.
Onions, 434.
Opuntias, culture of, 220.
Orchids, the, at Ferniehurst, 162.
Osborne, Mr Thos., the death of, 152—Mr William, 193.
Otago, Royal Horticultural Society of, 381.
Pachyphytum for outdoor decoration, 22.
Palms, dwarf, 270, 318.
Pansy, the, 511—as a bedding plant, 564.
Passiflora princeps, 36.
Peaches, forcing—temperature, 155, 218—spurs versus shoots, 359.
Pelargoniums, 357—forcing, 117, 420—show, as bedding-plants, 425.
Petunias for the conservatory, 303—culture of, 455.
Picea, culture of, 206.
Pine-Apple, seedling, raised at Lambton, 15.
Pine-Apples, ripening, 118.
Pinks for the conservatory, 116.
Pinus, notes on, 57, 110.
Piper on poultry, 46.
Plant-houses, the new, in Liverpool Botanic Gardens, 13.
Pleiones, notes on, 566.
Poinsettia pulcherrima, culture of, 81, 91.
Polyanthus, hardy, 89.
Potato-disease, 509—the American Rose, 419, 520.
Potatoes, early, 86—new, 179.
Pot-bound fruit-trees, 338, 429, 506.
Primrose, the China, 452.
Primula cortusoides amœna, 269—Japonica, 90.
Pruning and training, 16.
Pyrus malus floribunda, 90.
Quercus Ilex, the, 84—to transplant, 40.
Raspberry, Roger's Victoria, 70.
Rhododendrons for in-doors, cultural hints on, 274.
Rhubarb, forcing of, 491.
Rhyncospermum Jasminoides, 120.
Rivinas, 456.
Rogers's Victoria Raspberry, 70.
Room-decoration, plants suitable for, 326.
Root-pruning young Vines, 31.
Rose, Mr, death of, 340.
Rose Hedges, 570.
Roses for the conservatory, 116—a few notes on, 242—and Rose-shows of the year, the, 393—China or Tea-scented, propagating, 74—hybrid perpetual, forcing, 459.
Salvia splendens, 31.
Saxifraga longifolia, 508.
Saxifraga, the, 77.
Seakale, forcing of, 491.
Sedums, the, 77.
Sempervivums, the, 75.
Shanking of Grapes, the, 360.
Shrubs, hardy, for forcing, 9.
Silver Firs, culture of, 206.
Simpson's Celery collar, 177.
Soft-wooded plants for the conservatory, 301.
Soil-texture, 252.
Soils, garden, on, 433.
Spring flowers, a plea for, 260—Frosts, late, 464.
Spruce Firs, their culture, 158.
Statice caspica, 418—trinervis, 419.
Strawberry forcing, 105, 171.
Succulents for outdoor decoration, notes on, 20, 75, 133, 219, 266.
Tabernœmontana, culture of, 414.
Table-decoration, plants for, 93, 223—foliage plants for, 144.
Taxodium, notes on, 398.
Tea-culture in Southern Bengal, 529.
Tea-scented Roses, propagating, 74.
Temple, Mr, presentation to, 572.

Digitized by Google

Thyrsacanthus rutulens, 132.
Tobacco, 184.
Torenia Asiatica, 507.
Training and pruning, 16.
Trenching, notes on, 122.
Trillium grandiflorum for winter decoration, 273.
Tropœolums, 550—Minnie Warren, 576.
Under gardeners, 562.
Vallotta purpurea, 92.
Venus's Fly-trap, 362.
Veratrum, notes on, 330.
Verbena venosa, 471—and Geranium Bijou, 498.
Vine-growing under violet glass, American, 139—leaves, excrescences on, 297.
Vines, young, root-pruning, 31—successful treatment of mildew on, 514.
Viola Perpetual Yellow, 510.
Violas for summer bedding, 322.
Violets and Lilies of the Valley, 543.
Wages, gardeners', 153, 190, 192, 201, 244. 340, 415, 465.
Wardian and Warringtonian cases, culture of Ferns in, 24, 67, 123.
Watering, 249.
Weather of 1871, the, 38, 98—1872, 244, 339.
Wellingtonia, notes on, 349.
White Naples Onion, the, 377.
Wild plants, local notes on, 225, 327, 518.
Wiring garden-walls, 62, 94, 128, 141, 157, 181, 237.
Woodside Gardens, a visit to, 81.
Young gardener, jottings by a, 40.
Young gardeners' Sunday on duty, the, 375.

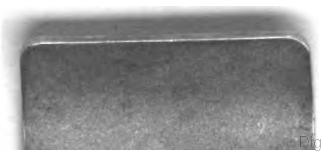
Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google


Digitized by Google

